Pioneer sound.vision.soul

Service Manual

XV-DVR9H

ORDER NO.
RRV3063

DVD-RW/HDD TUNER

XV-DVR9H

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Regional restriction codes (Region No.)	Remarks
XV-DVR9H	WLXJ	AC220-240V	3	
XV-DVR9H	YPWXJ	AC240V	4	

- **When servicing this model, some service procedures may reset the settings that customer set (*) to the factory default settings. Make sure to explain this to the customer.**

(*) : Initial Setup (Clock Setting, Tuner settings, Video In / Out settings, Audio In settings, Audio Out settings, Language settings, Recording settings, Playback settings)

Refer to the chapter 15 of the Operating Instructions for more details.

An HDD (Hard Disc Drive) is mounted in this product.
The HDD is a precision instrument very vulnerable to shock and electrostatic charges. Please read "7.3 Cautions on Handling the HDD" in this manual and exercise sufficient caution when handling the HDD itself, as well as the product with the HDD built in.
When an HDD becomes defective and inoperable, restoration of the user's data recorded on the HDD, or copying of the user's recorded data to other media (such as a new HDD) is totally impossible. Before servicing, OBTAIN THE USER'S PRIOR CONSENT to that effect.
The user must be made aware that all recorded data are deleted if the HDD is intialized.

For details, refer to "Important Check Points for Good Servicing".

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ⓒ**PIONEER CORPORATION 2004**

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SAFETY INFORMATION

LITHIUM BATTERY NOTICE

CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

When replacing the lithium batteries, follow the note below. Dispose of the used battery promptly. Keep away from children. Do not disassemble and do not dispose of in fire.

The battery used in this device may present a fire or chemical hazard if mistreated. Do not recharge, disassemble, heat above 100°C or incinerate. Replace only with the same Part Number. Use of another battery may present a risk of fire or explosion.

Note : The lithium battery installation position is shown in the exploded views.

LASER DIODE CHARACTERISTICS
MAXIMUM OUTPUT POWER : 70 mW
PULSE WIDTH : 100ns DUTY : 50% 140mW
WAVELENGTH : 654 - 662 nm

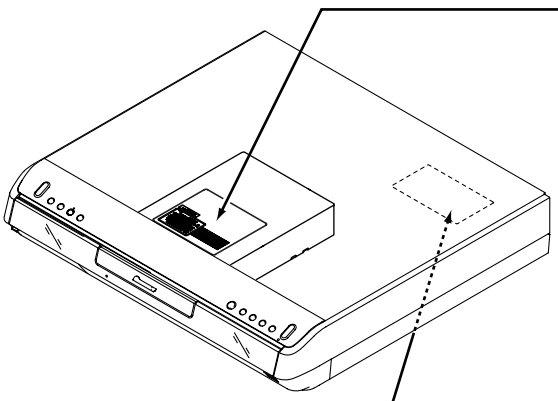
LASER DIODE CHARACTERISTICS
MAXIMUM OUTPUT POWER : 100 mW
PULSE WIDTH : 100ns DUTY : 50% 240mW
WAVELENGTH : 780 - 787 nm

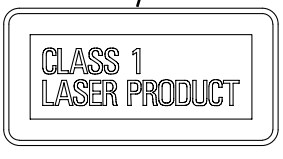
■ LABEL CHECK

WARNING !

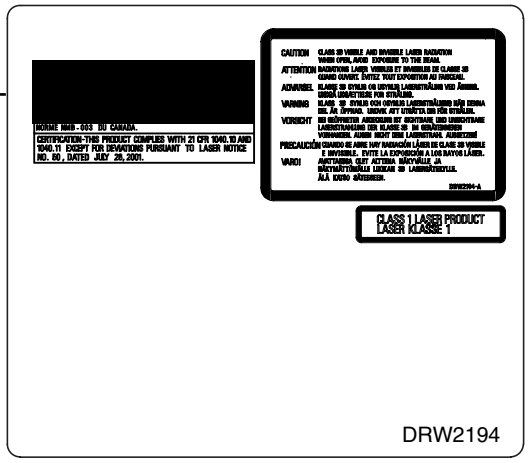
The AEL (accessible emission level) of the laser power output is less than **CLASS 1** but the laser component is capable of emitting radiation exceeding the limit for **CLASS 1**.

A specially instructed person should do servicing operation of the apparatus.





(Printed on Name Label)



DRW2194

Additional Laser Caution

1. The ON/OFF(ON:low level,OFF:high level) status of the CLAMP signals for detecting the loading state are detected by the drive CPUs, and the design prevents laser diode oscillation when the CLAMP signal turns OFF.
   In normal operation, if no disc is clamped, the laser diode oscillation is disabled.
   However, the interlock does not always operate in the test mode.

2. When the cover is opened, close viewing of the objective lens with the naked eye will cause exposure to a Class 3A laser beam.

[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

1. Product safety

Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

2. Adjustments

To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts

Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

4. Cleaning

For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws

To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

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1. SPECIFICATIONS

General

System . . . . . HDD, DVD-Video, DVD-R/RW, Video-CD, Super VCD, CD, CD-R/RW (WMA, MP3, JPEG, CD-DA)
Power requirements . . . . . 220-240 V, 50/60 Hz
Power consumption
XV-DVR9H . . . . . 76 W
S-DVR9SW
Australian model . . . . . 147 W
Others . . . . . 151 W
Power consumption in standby
XV-DVR9H . . . . . 0.80 W (front display off)
S-DVR9SW . . . . . 0 W
Dimensions . . . . . 420 (W) x 77.5 (H) x 398 (D) mm
Weight . . . . . 5.6 kg
Operating temperature . . . . . +5°C to +35°C
Operating humidity . . . . . 5% to 85% (no condensation)
TV system . . . . . PAL/SECAM/NTSC

Recording

Recording format . . . . . DVD Video Recording (VR) DVD-VIDEO

Recordable discs

DVD-RW (DVD Re-recordable disc)
DVD-R (DVD Recordable disc)

Video recording format

Sampling frequency 13.5MHz
Compression format . . . . . MPEG

Audio recording format

Sampling frequency 48kHz
Compression format . . . . . Dolby Digital or Linear PCM (uncompressed)

Recording time

HDD

Fine (FINE) . . . . . Approx. 17 hours
Standard Play (SP) . . . . . Approx. 34 hours
Long Play (LP) . . . . . Approx. 68 hours
Extended Play (EP) . . . . . Approx. 102 hours
Manual Mode (MN) . . . . . Approx. 17-102 hours

DVD-R/DVD-RW

Fine (FINE) . . . . . Approx. 1 hour
Standard Play (SP) . . . . . Approx. 2 hours
Long Play (LP) . . . . . Approx. 4 hours
Extended Play (EP) . . . . . Approx. 6 hours
Manual Mode (MN) . . . . . Approx. 1-6 hours

TV tuner section

Receivable channels

	PAL B/G		PAL I	
	Frequency	Channel	Frequency	Channel
VHF (low)	47 - 89 MHz	E2 - E4 X - Z	44 - 89 MHz	A - C X - Z
VHF (high)	104 - 300 MHz	E5 - E12 S1 - S20 M1 - M10 U1 - U10	104 - 300 MHz	D - J 11, 13 S1 - S20
Hyper	302 - 470 MHz	S21 - S41	302 - 470 MHz	S21 - S41
UHF	470 - 862 MHz	E21 - E69	470 - 862 MHz	E21 - E69

	NTSC M/N		SECAM D/K	
	Frequency	Channel	Frequency	Channel
VHF (low)	49 - 65 MHz	2 - 4	49 - 94 MHz	R1 - R5
VHF (high)	104 - 300 MHz	5 - 10 B - Q	104 - 300 MHz	R6 - R12 S1 - S20
Hyper	300 - 470 MHz	S21 - S41	302 - 470 MHz	S21 - S41
UHF	470 - 862 MHz	21 - 69	470 - 862 MHz	E21 - E69

STEREO
B/G - A2
I - NICAM
B/G - NICAM
D/K - NICAM
M/N - BTSC

Amplifier section

Continuous Power Output (RMS):
Front, Center, Surround . . . . . 100 W per channel (1 kHz, 10 % T.H.D., 6 Ω)
Subwoofer . . . . . 100 W (100 Hz, 10 % T.H.D., 6 Ω)

FM tuner section

Frequency range . . . . . 87.5 - 108 MHz
Antenna . . . . . 75 Ω, unbalanced

AM tuner section

Frequency range . . . . . 531 kHz to 1,602 kHz (9kHz step)
530 kHz to 1,700 kHz (10kHz step)
Antenna . . . . . Loop antenna

Timer

Programs . . . . . 1 month/32 programs
Clock . . . . . Quartz lock (24-hour digital display)
Power off memory . . . . Approx. 5 years (after manufacture)

Input/Output

VHF/UHF antenna input/output terminal . . . . .VHF/UHF set 75 Ω (IEC connector)
Video input . . . . . Line 1 (rear), 2 (front), 3 (rear)
Input level . . . . . 1 Vp-p (75 Ω)
Jacks . . . . . RCA
Video output . . . . . Line Out, Monitor Out
Output level . . . . . 1 Vp-p (75 Ω)
Jacks . . . . . RCA jacks
S-Video input . . . . . Line 1 (rear), 2 (front), 3 (rear)
Y (luminance) - Input level . . . . . 1 Vp-p (75 Ω)
C (colour) - Input level. . . . . 286 mVp-p (75Ω)
Jacks . . . . . 4 pin mini DIN
S-Video output . . . . . Line Out, Monitor Out
Y (luminance) - Output level. . . . . 1 Vp-p (75 Ω)
C (colour) - Output level . . . . . 286 mVp-p (75 Ω)
Jacks . . . . . .4 pin mini DIN
Component video output
Output level. . . . . Y: 1.0 Vp-p (75 Ω)
PB, PR: 0.7 Vp-p (75Ω)
Jacks . . . . . RCA jacks
Audio input . . . . . Line 1 (rear), 2 (front), 3 (rear), Analog audio (rear) L/R
Input level
During audio input . . . . . 2V rms
(Input impedance: more than 22 k Ω)
Jacks . . . . . RCA jacks
Optical digital input 1,2 . . . . . Optical digital jack
Audio output . . . . . Line Out, Analog audio
During audio output . . . . . .1V rms
(Output impedance: less than 2.2 k Ω)
Jacks . . . . . RCA jacks
Optical digital output . . . . . Optical digital jack
Control input . . . . . Mini jack
DV input/output . . . . . 4 pin
(i.LINK/IEEE 1394 standard)

Accessories (DVD-RW/HDD Tuner)

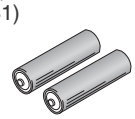
Remote control. 1
AA/R6 dry cell batteries. 2
Video cable 1
RF antenna cable. 1
12-pin system cable (blue) 1
16-pin system cable (black) 1
AM loop antenna 1
FM wire antenna 1
Power cord 2
Setup Guide 1
Warranty Card (Australia and New Zealand only) 1
Operating instructions

• Accessories

Remote control
(AXD7401)

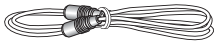
AM loop antenna
(ATB7013)

Dry cell batteries
(AA, R6P) x2
(VEM1031)

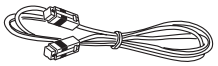


FM Wire antenna
(ADH7030)

RF antenna cable
(VDE1075)

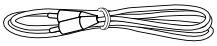


12-pin system cable
(ADE7063) L=3m



Blue plugs

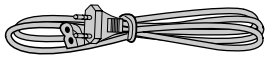
Video cable
(XDE3046)



16-pin system cable
(ADE7099)

Black plugs

Power cord
(ADG1154: WLXJ type) x2

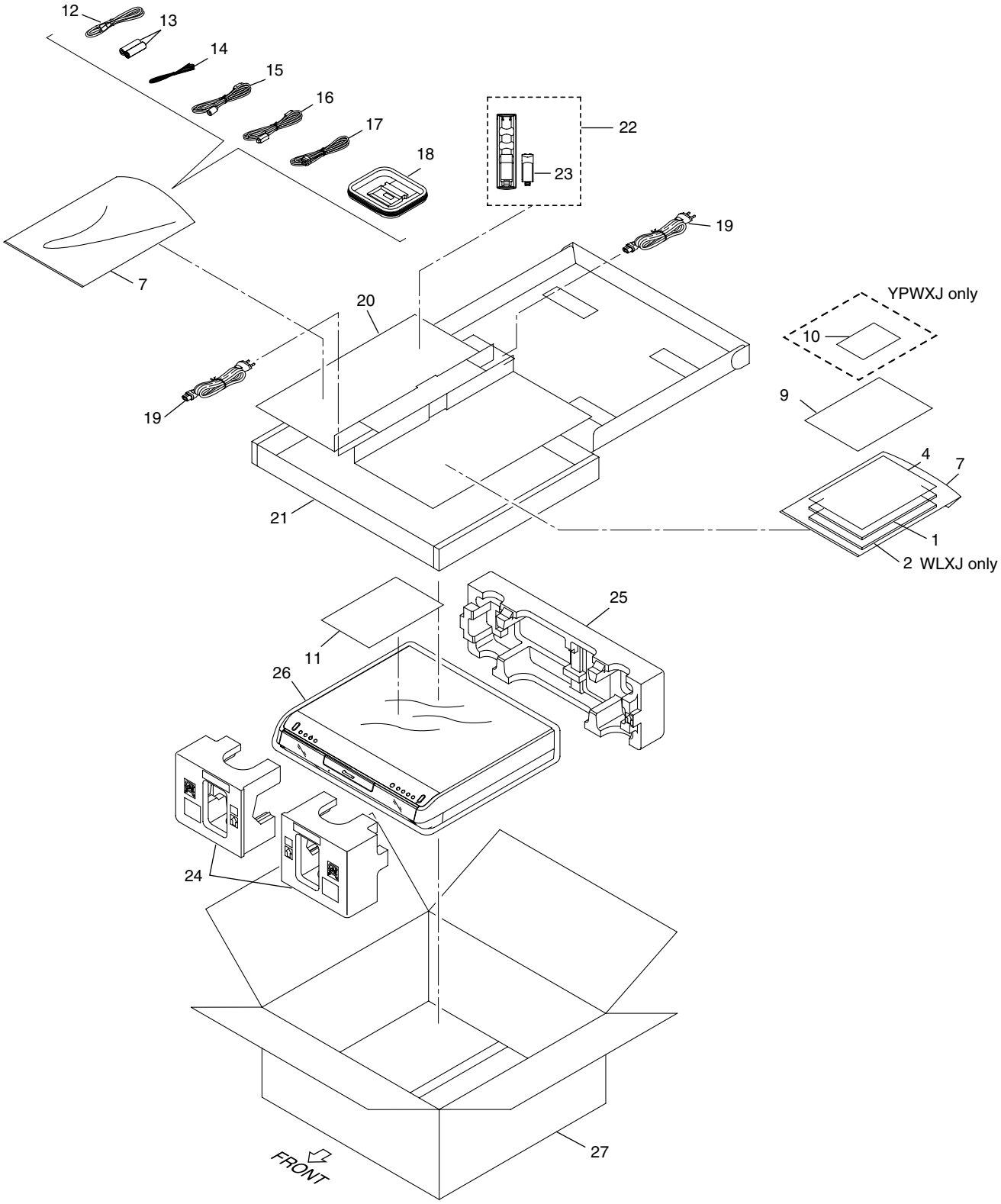


Power cord
(ADG7099: YPWXJ type) x2

2. EXPLODED VIEWS AND PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on product are used for disassembly.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*

2.1 PACKING



PACKING SECTION Parts List

Mark	No.	Description	Part No.
	1	Operating Instructions (English)	ARB7317
	2	Operating Instructions (Chinese)	See Contrast table(2)
	3	••••••	
	4	Setup Guide (English/Chinese)	ARE7350
	5	••••••	
	6	••••••	
NSP	7	Polyethylene Bag	Z21-038
	8	••••••	
	9	HDD Caution 7L A	ARM7090
NSP	10	Warranty Card	See Contrast table(2)
	11	HDD Caution 7L B	ARM7091
	12	Video Cable	XDE3046
NSP	13	Dry Cell Battery (AA,R6P)	VEM1031
	14	FM Wire Antenna	ADH7030
	15	RF Antenna Cable	VDE1075
	16	12-pin System Cable	ADE7063
	17	16-pin System Cable	ADE7099
	18	AM Loop Antenna	ATB7013
⚠	19	Power Cord	See Contrast table(2)
	20	Spacer Card	AHB7102
	21	Spacer	AHB7096
	22	Remote Control	AXD7401
	23	Battery Cover	AZA7424
NSP	24	Front Pad	AHA7438
NSP	25	Rear Pad	AHA7439
	26	Packing Sheet	AHG7010
	27	Packing Case	See Contrast table(2)

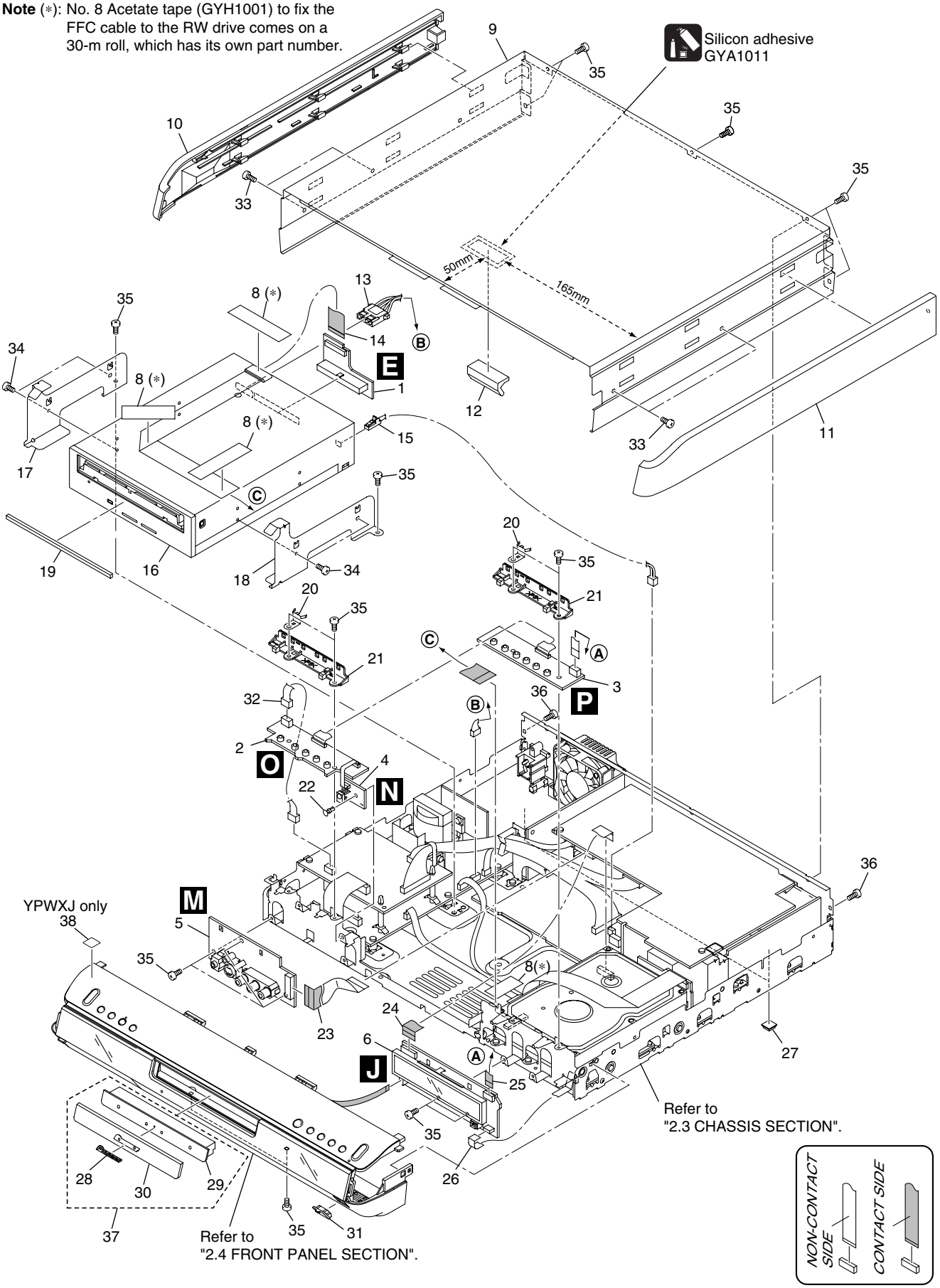
(2) CONTRAST TABLE

XV-DVR9H/WLXJ and YPWXJ are constructed the same except for the following:

Mark	No.	Description	XV-DVR9H/WLXJ	XV-DVR9H/YPWXJ
	2	Operating Instructions (Chinese)	ARC7562	Not used
NSP	10	Warranty Card	Not used	ARY7047
⚠	19	Power Cord	ADG1154	ADG7099
	27	Packing Case	AHD8310	AHD8311

2.2 EXTERIOR SECTION

Note (*): No. 8 Acetate tape (GYH1001) to fix the FFC cable to the RW drive comes on a 30-m roll, which has its own part number.



EXTERIOR SECTION Parts List

Mark	No.	Description	Part No.
	1	ATWB Assy	AWU8240
	2	KEY L Assy	AWU8221
	3	KEY R Assy	AWU8222
	4	IR Assy	AWU8227
	5	FRONT JACK Assy	AWU8226
	6	DISPLAY Assy	AWU8216
	7	Silicone Adhesive	GYA1011
	8	Acetate Tape	GYH1001
	9	Bonnet Case	ANE7322
	10	Side Panel L	AAK8208
	11	Side Panel R	AAK8209
	12	Gasket	AEC7515
	13	4P Lead with Housing	ADX7468
	14	40P FFC/60V	ADD7496
	15	Housing Assy (2P)	VKP2315
	16	DRIVE Assy R7	VXX2942
	17	Mecha Angle L	AND7069
	18	Mecha Angle R	AND7070
	19	Panel Sheet	AEC7522
	20	Earth Spring	ABK7059
	21	Joint Mold	AMR7489
	22	Rivet	AEC7514
	23	17P FFC/60V	ADD7494
	24	15P FFC/60V	ADD7488
	25	9P FFC/60V	ADD7492
	26	7P FFC/60V	ADD7491
	27	Rubber Foot	VEB1325
	28	PIONEER Name Plate	AAM7014
	29	Tray Cap	AAK8210
	30	Tray Panel	AAK8213
	31	DV Cap	AAK8215
	32	Connector Assy (4P)	PF04PP-S05
	33	Screw	BBZ30P040FCC
	34	Screw	AMZ30P060FTC
	35	Screw	BBZ30P080FTC
	36	Screw	PPZ30P080FTC
	37	Tray Panel Assy	AZA7431
NSP	38	Energy Star Label	See Contrast table(2)

(2) CONTRAST TABLE

XV-DVR9H/WLXJ and YPWXJ are constructed the same except for the following:

Mark	No.	Description	XV-DVR9H/WLXJ	XV-DVR9H/YPWXJ
NSP	38	Energy Star Label	Not used	AAX8022

Note :

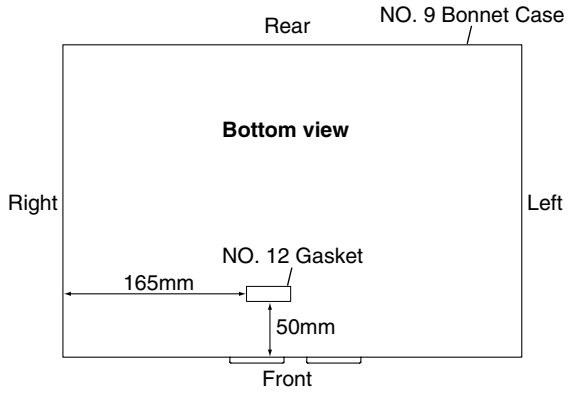
When the Bonnet Case is replaced, the Gasket also need to be replaced at the same time.

The reason why No.12 Gasket AEC7515 is necessary :
When No.12 Gasket AEC7515 is not assembling to the Bonnet Case, the product does not satisfy the standard value of electric wave interference regulation.
When the Bonnet Case is replaced, confirm that AEC7515 is assembling to the Bonnet Case.

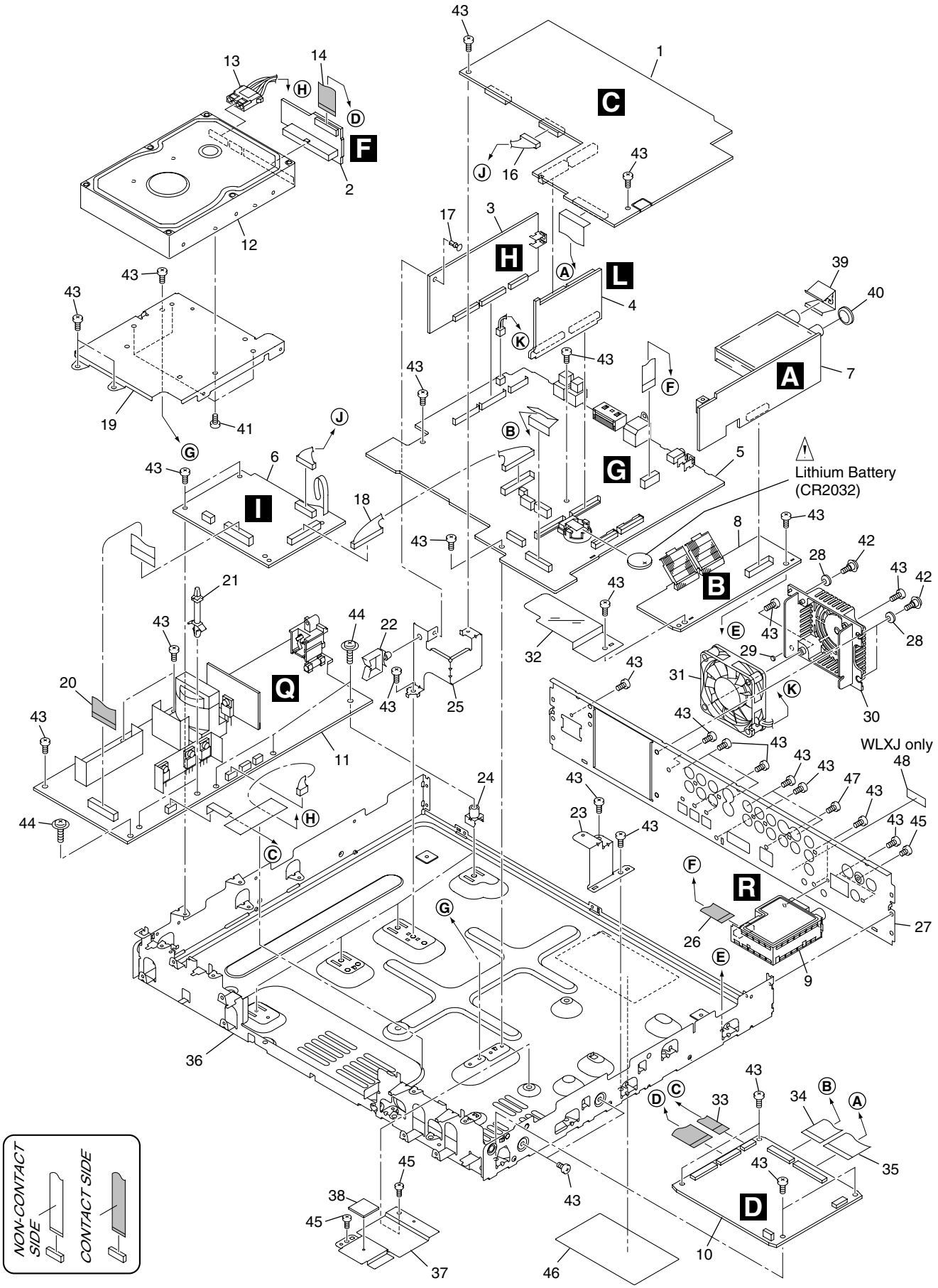
Note :

No.8 Acetate Tape using at the production line is ZTA-156A-19.

• Position of the Gasket



2.3 CHASSIS SECTION



CHASSIS SECTION Parts List

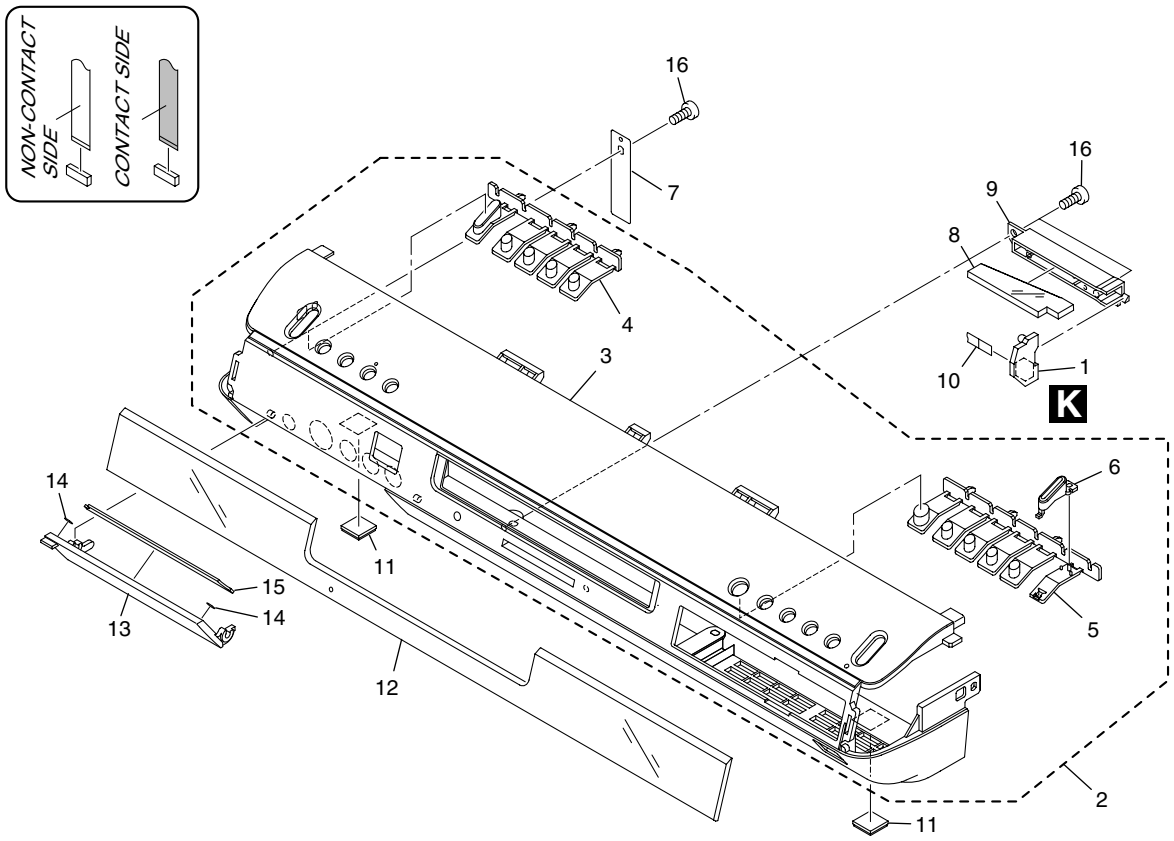
Mark	No.	Description	Part No.
	1	JACK Assy	AWU8218
	2	ATHB Assy	AWU8241
	3	DSP Assy	AWX8486
	4	TRADE Assy	AWU8224
	5	CONTROL Assy	AWU8208
	6	REG Assy	AWU8225
	7	TV MODULE Assy	AWU8220
	8	TV CONNECT Assy	AWU8209
	9	FM/AM TUNER Unit	AXX7173
	10	MAIN Assy	VWV2025
⚠	11	POWER SUPPLY Unit	AWR7013
	12	HDD 80G 4R080L0	VXF1010
	13	4P Lead with Housing	ADX7469
	14	40P FFC/60V	ADD7497
	15	••••••	
	16	Connector Assy (10P)	PF10PP-S25
	17	Rivet	AEC7514
	18	Connector Assy (16P)	PF16PP-S25
	19	HDD Base	ANG7517
	20	21P FFC/60V	ADD7487
	21	PCB Support	AEC7513
	22	Wire Saddle	AEC7518
	23	Angle PCB B	AND7068
	24	PCB Mold	AMR2534
	25	Angle PCB A	AND7067
	26	11P FFC/60V	ADD7493
	27	Rear Panel	See Contrast table(2)
	28	Rubber Bushing	VEB1112
	29	Door Cushion	VEC2312
	30	Fan Cover	AMR7488
	31	DC Fan Motor	VXM1109
	32	Barrier	AEC7524
	33	8P FFC/60V	ADD7486
	34	24P FFC/60V	ADD7489
	35	32P FFC/60V	ADD7490
NSP	36	Bottom Chassis	ANA7175
NSP	37	Heat Sink	VNH1070
	38	Radiation Sheet	AEB7352
	39	Earth Plate	VBK1153
	40	Gasket Ring	AEB7363
	41	#6-32 Screw	DBA1125
	42	Screw B	PBA1014
	43	Screw	BBZ30P080FTC
	44	Screw	IBZ30P150FCC
	45	Screw	BBZ30P040FCC
NSP	46	Name Label PT	See Contrast table(2)
	47	Screw	PSC30P080FNI
NSP	48	SISIR Label	See Contrast table(2)

(2) CONTRAST TABLE

XV-DVR9H/WLXJ and YPWXJ are constructed the same except for the following:

Mark	No.	Description	XV-DVR9H/WLXJ	XV-DVR9H/YPWXJ
	27	Rear Panel	ANC8302	ANC8291
NSP	46	Name Label PT	AAL7376	AAL7378
NSP	48	SISIR Label	AAX8062	Not used

2.4 FRONT PANEL SECTION



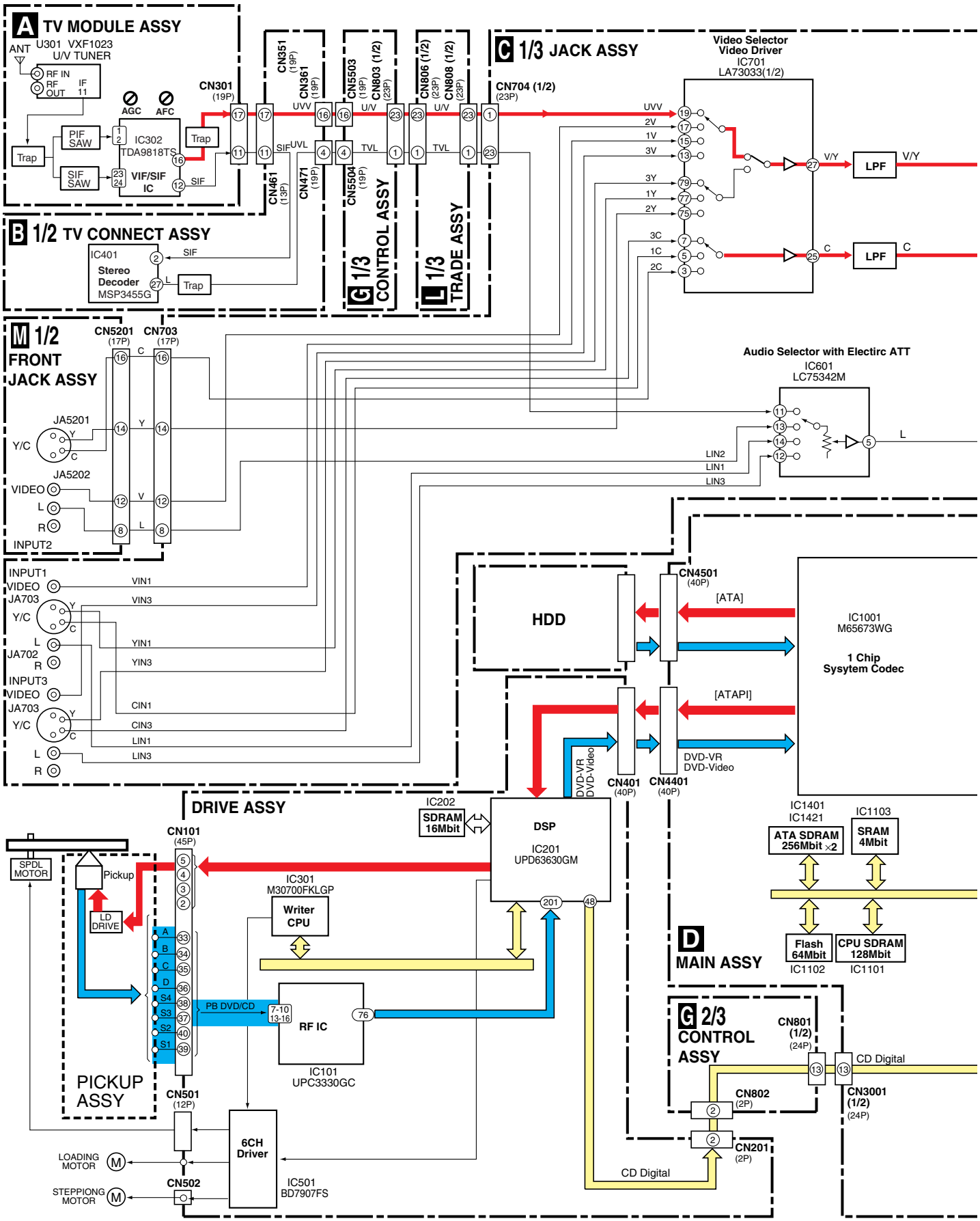
FRONT PANEL SECTION Parts List

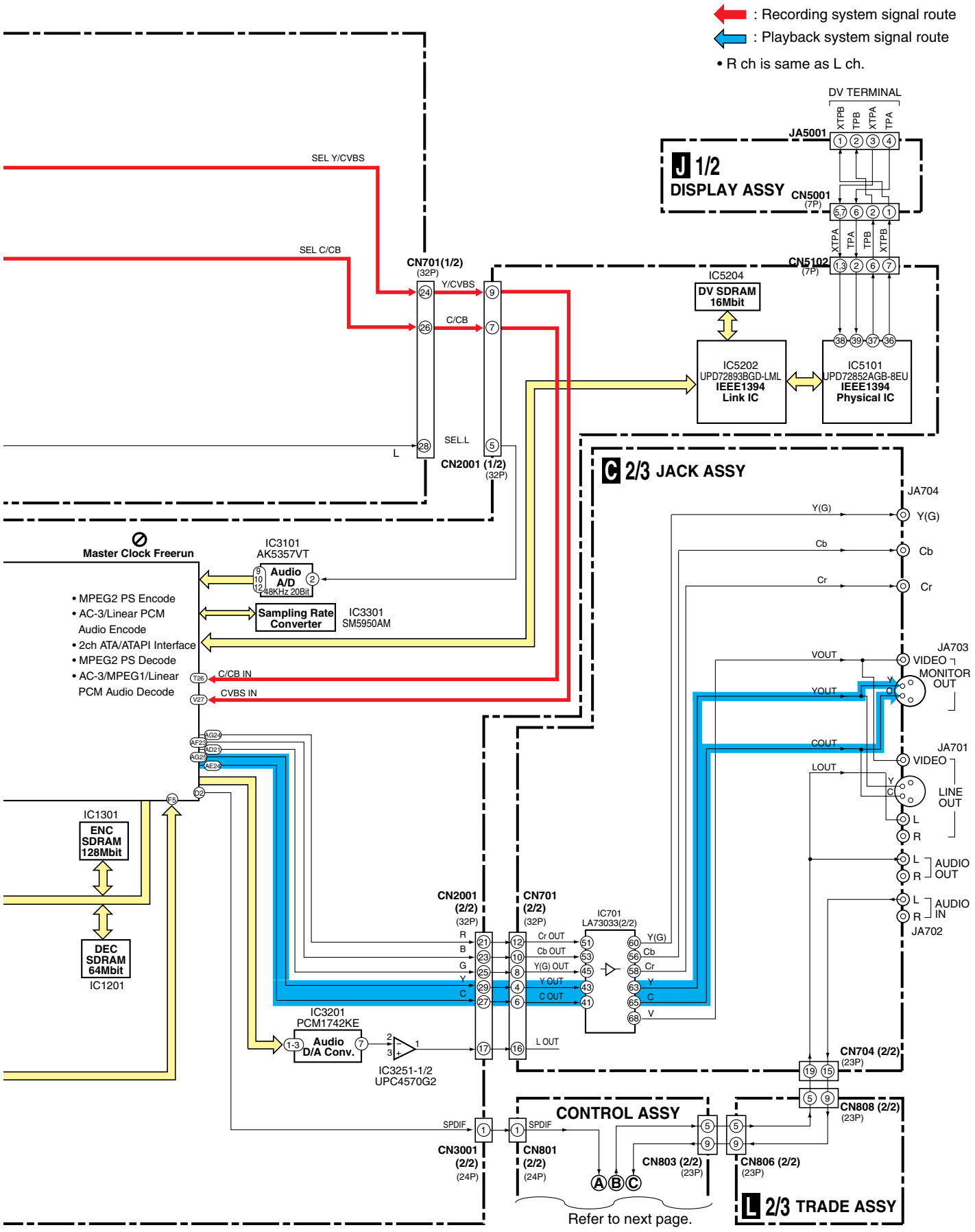
Mark	No.	Description	Part No.
	1	LED Assy	AWU8223
	2	Front Panel Assy	AXG7244
	3	Front Panel	AMB7893
	4	Button L	AAD7731
	5	Button R	AAD7738
	6	Button Cap	AAK8246
	7	Door Spring	ABH7234
	8	Illumination Lens	AAK8214
	9	Lens Holder	AMR7487
	10	3P FFC/60V	ADD7495
	11	Rubber Foot	VEB1325
	12	Window	AAK8211
	13	Sealing Door	AAK8278
	14	Door Cushion	VEC2312
	15	Door Sheet	AAK8216
	16	Screw	PPZ30P080FTC

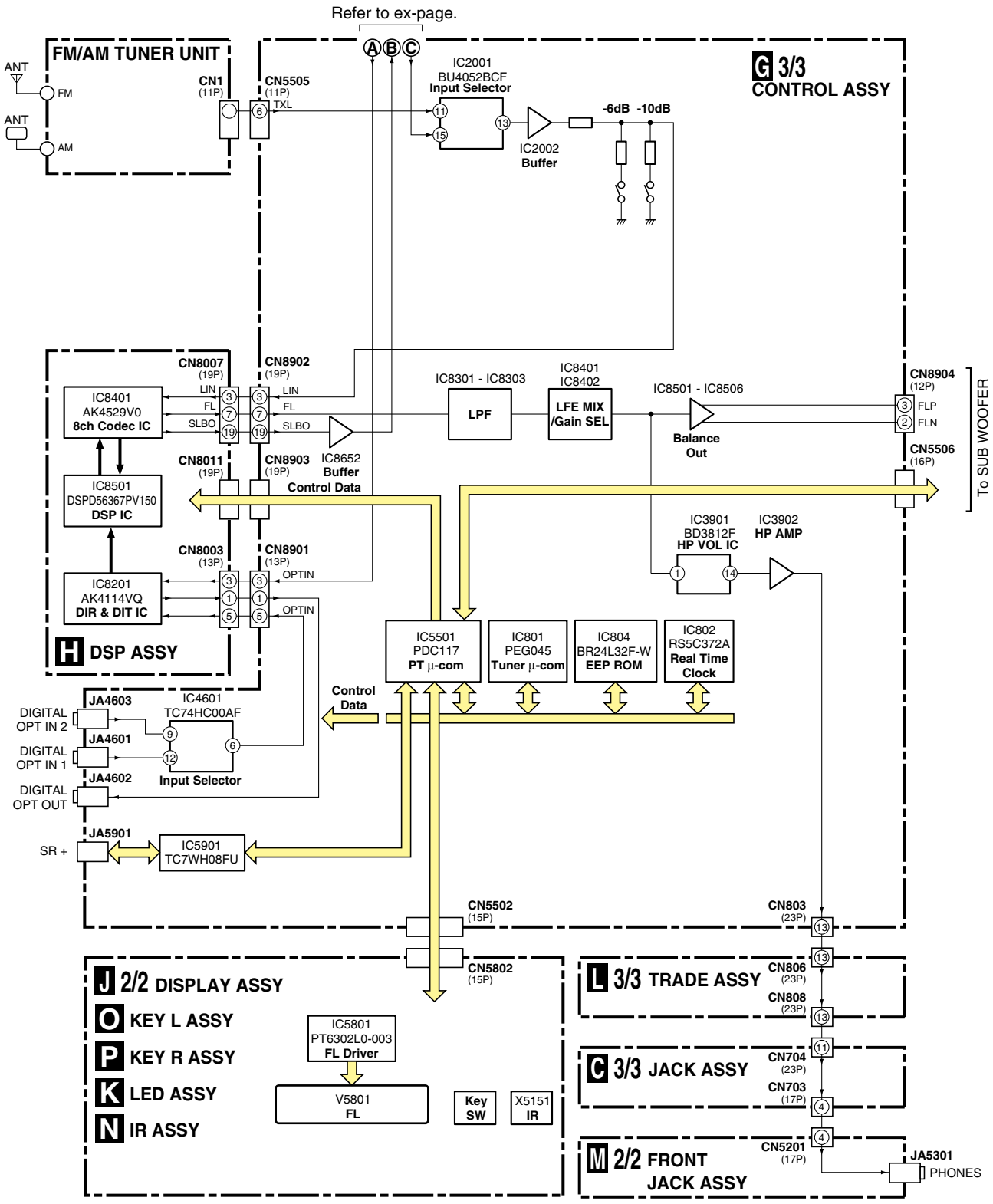
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

3.1 BLOCK DIAGRAM

3.1.1 OVERALL BLOCK DIAGRAM




: Recording system signal route
: Playback system signal route
• R ch is same as L ch.
DV TERMINAL
XTPB
TPB
XTPA
TPA
JA5001
J 1/2
DISPLAY ASSY
CN5001
(7P)
CN5102
(7P)
SEL Y/CVBS
SEL C/CB
CN701(1/2)
(32P)
Y/CVBS
C/CB
IC5204
DV SDRAM
16Mbit
IC5202
UPD72893BGD-LML
IEEE1394
Link IC
IC5101
UPD72852AGB-8EU
IEEE1394
Physical IC
SEL.L
L
CN2001 (1/2)
(32P)
C 2/3 JACK ASSY
JA704
Y(G)
Cb
Cr
Master Clock Freerun
IC3101
AK5357VT
Audio
A/D
48KHz 20Bit
Sampling Rate
Converter
IC3301
SM5950AM
• MPEG2 PS Encode
• AC-3/Linear PCM
Audio Encode
• 2ch ATA/ATAPI Interface
• MPEG2 PS Decode
• AC-3/MPEG1/Linear
PCM Audio Decode
C/CB IN
CVBS IN
JA703
VIDEO
MONITOR
OUT
VOUT
YOUT
COUT
JA701
VIDEO
LINE
OUT
LOUT
L
R
AUDIO
OUT
AUDIO
IN
JA702
IC1301
ENC
SDRAM
128Mbit
DEC
SDRAM
64Mbit
IC1201
CN2001
(2/2)
(32P)
CN701
(2/2)
(32P)
IC701
LA73033(2/2)
R
B
G
Y
C
Cr OUT
Cb OUT
Y(G) OUT
Y OUT
C OUT
V
IC3201
PCM1742KE
Audio
D/A Conv.
IC3251-1/2
UPC4570G2
L OUT
CN704 (2/2)
(23P)
CONTROL ASSY
SPDIF
CN3001
(2/2)
(24P)
CN801
(2/2)
(24P)
CN803 (2/2)
(23P)
CN806 (2/2)
(23P)
CN808 (2/2)
(23P)
A B C
L 2/3 TRADE ASSY
Refer to next page.


Refer to ex-page.
A B C
FM/AM TUNER UNIT
ANT
FM
ANT
AM
CN1
(11P)
CN5505
(11P)
TXL
IC2001
BU4052BCF
Input Selector
IC2002
Buffer
-6dB -10dB
G 3/3
CONTROL ASSY
CN8007
(19P)
CN8902
(19P)
LIN
FL
SLBO
IC8401
AK4529V0
8ch Codec IC
IC8301 - IC8303
LPF
IC8401
IC8402
LFE MIX
/Gain SEL
IC8501 - IC8506
Balance
Out
CN8904
(12P)
FLP
FLN
CN5506
(16P)
To SUB WOOFER
CN8011
(19P)
CN8903
(19P)
IC8652
Buffer
Control Data
IC8501
DSPD56367PV150
DSP IC
IC3901
BD3812F
HP VOL IC
IC3902
HP AMP
CN8003
(13P)
CN8901
(13P)
OPTIN
IC8201
AK4114VQ
DIR & DIT IC
H DSP ASSY
IC5501
PDC117
PT μ-com
IC801
PEG045
Tuner μ-com
IC804
BR24L32F-W
EEP ROM
IC802
RS5C372A
Real Time
Clock
Control
Data
JA4603
DIGITAL
OPT IN 2
IC4601
TC74HC00AF
JA4601
DIGITAL
OPT IN 1
Input Selector
JA4602
DIGITAL
OPT OUT
JA5901
SR +
IC5901
TC7WH08FU
CN5502
(15P)
CN803
(23P)
CN5802
(15P)
CN806
(23P)
CN808
(23P)
J 2/2 DISPLAY ASSY
O KEY L ASSY
P KEY R ASSY
K LED ASSY
N IR ASSY
IC5801
PT6302L0-003
FL Driver
V5801
FL
Key
SW
X5151
IR
L 3/3 TRADE ASSY
C 3/3 JACK ASSY
CN704
(23P)
CN703
(17P)
M 2/2 FRONT
JACK ASSY
CN5201
(17P)
JA5301
PHONES

A

B

C

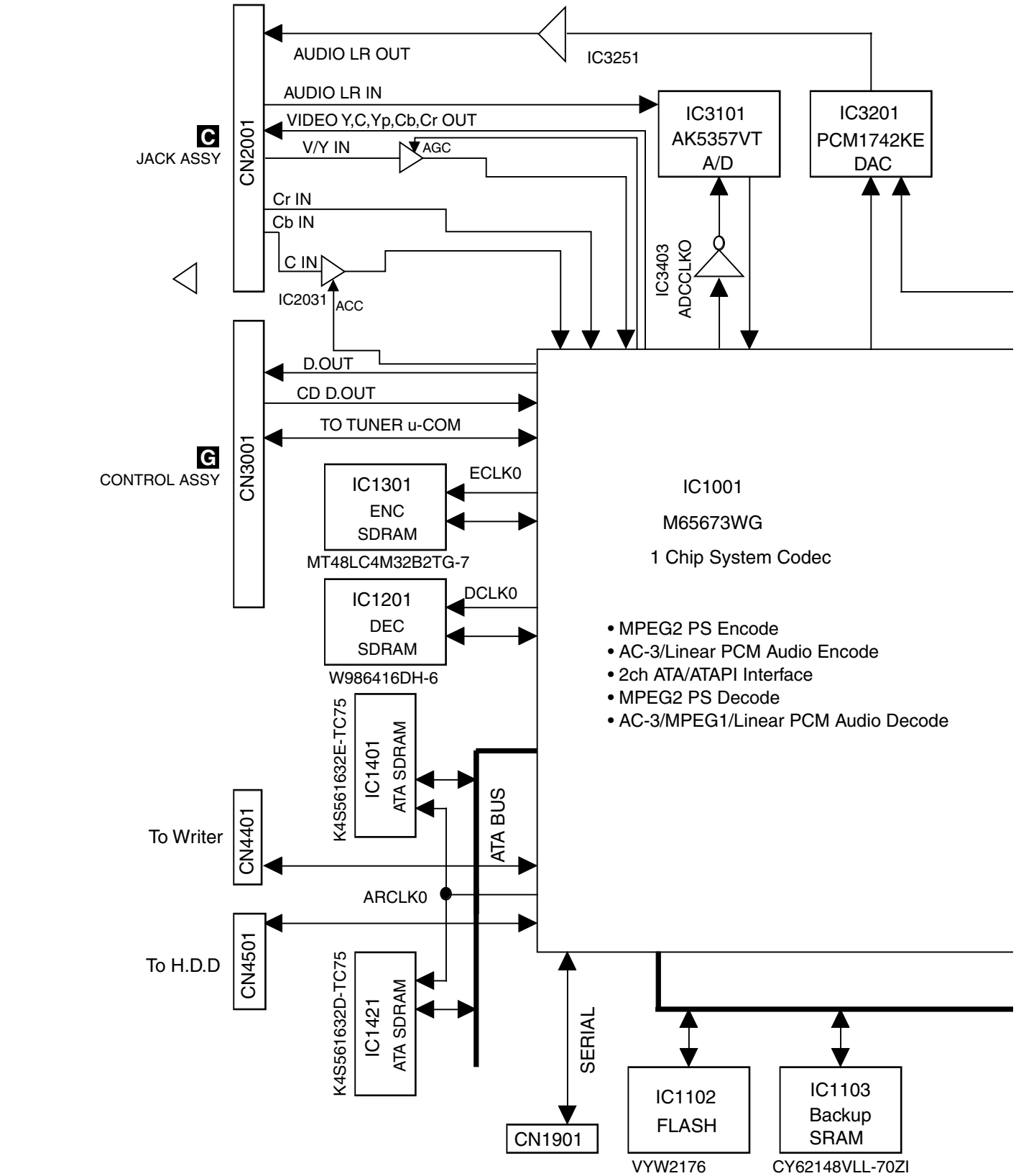
D

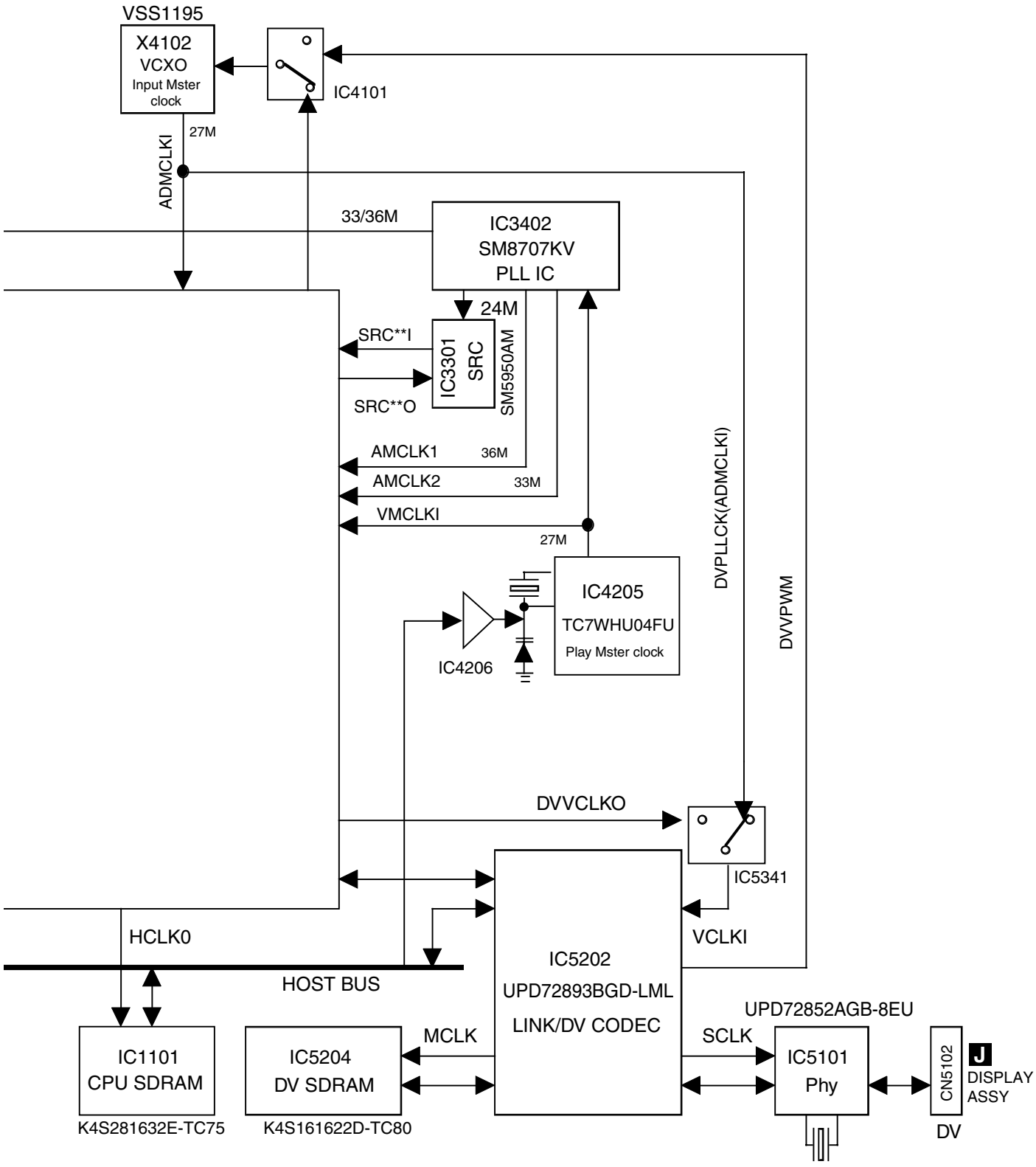
E

F

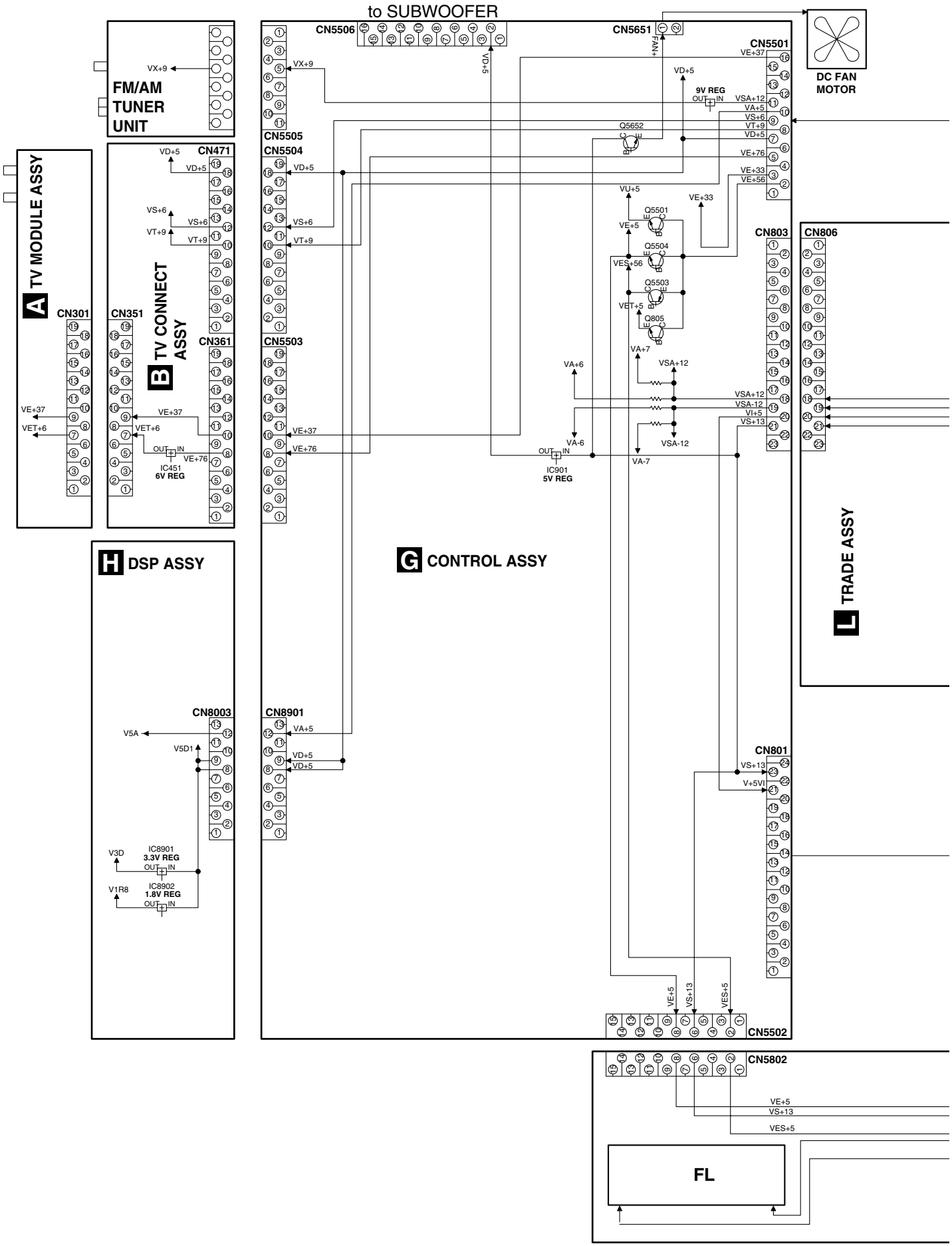
5 6 7 8

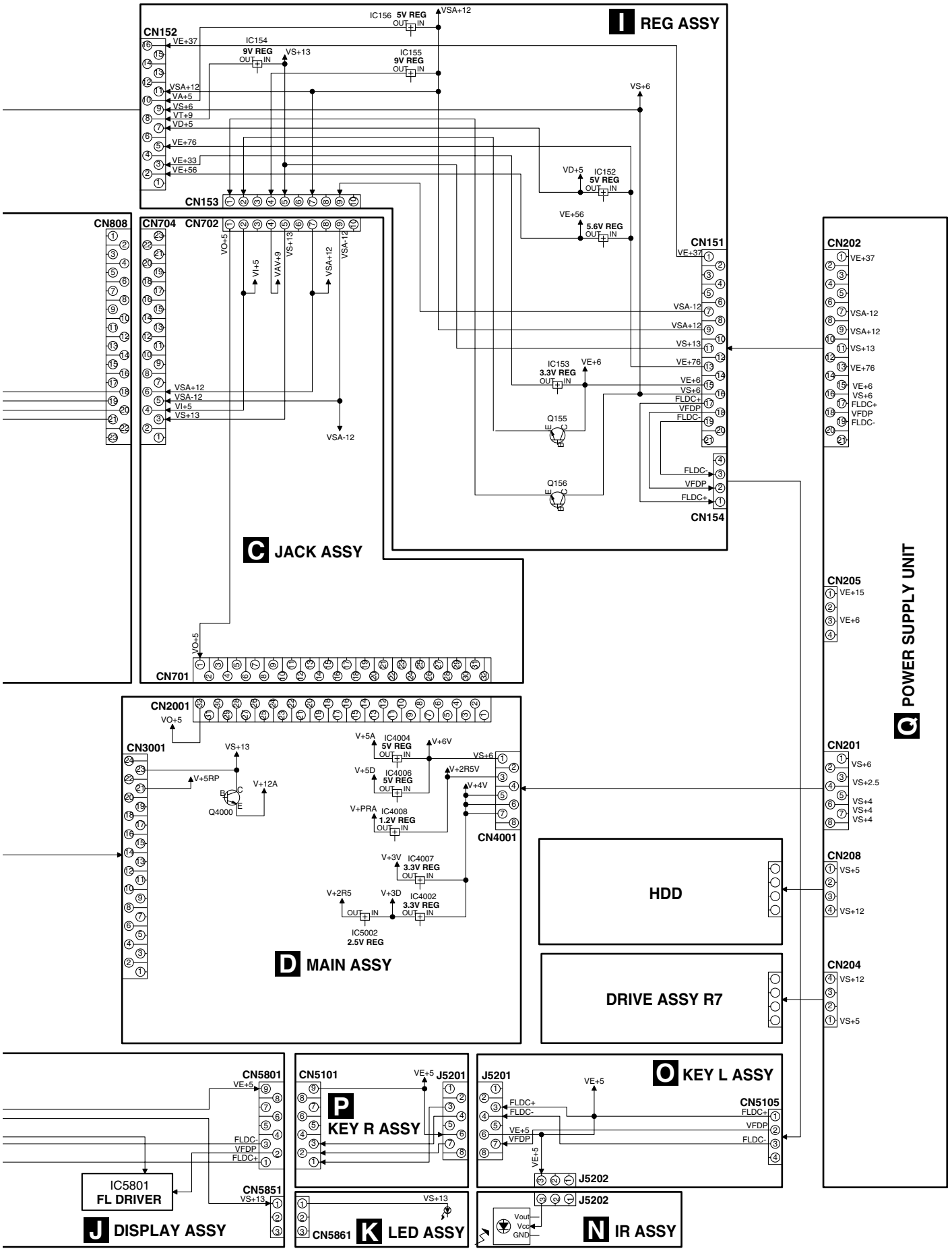
3.1.2 MAIN ASSY BLOCK DIAGRAM



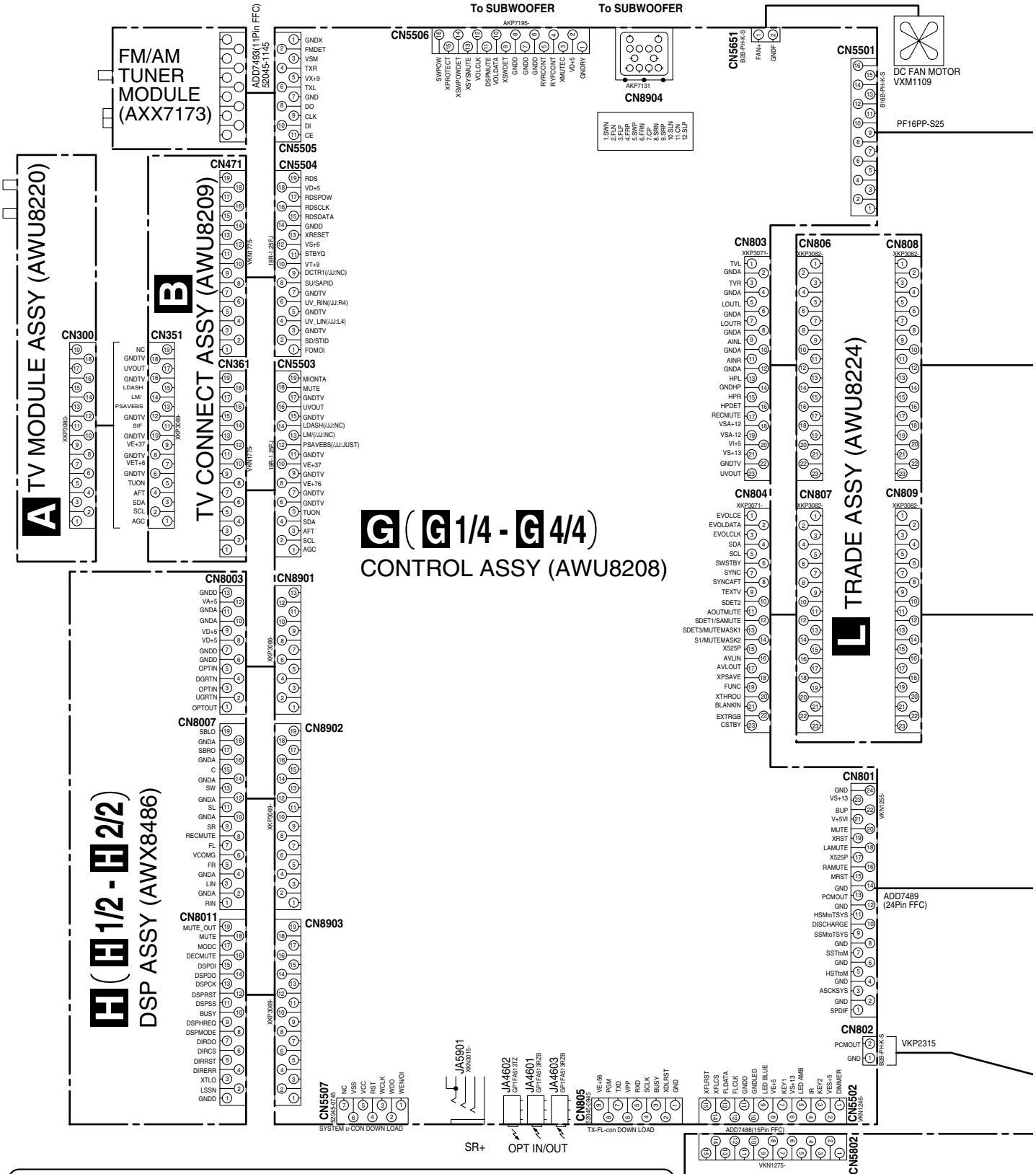

VSS1195
X4102
VCXO
Input Mster clock
IC4101
27M
ADMCLKI
33/36M
IC3402
SM8707KV
PLL IC
24M
SRC**I
IC3301
SRC
SM5950AM
SRC**O
AMCLK1
36M
AMCLK2
33M
VMCLKI
27M
IC4205
TC7WHU04FU
Play Mster clock
IC4206
DVPLLCK(ADMCLKI)
DVVPWM
DVVCLKO
IC5341
HCLK0
VCLKI
IC5202
UPD72893BGD-LML
LINK/DV CODEC
HOST BUS
UPD72852AGB-8EU
MCLK
SCLK
IC1101
CPU SDRAM
K4S281632E-TC75
IC5204
DV SDRAM
K4S161622D-TC80
IC5101
Phy
CN5102
J
DISPLAY ASSY
DV

3.1.3 POWER SUPPLY BLOCK DIAGRAM

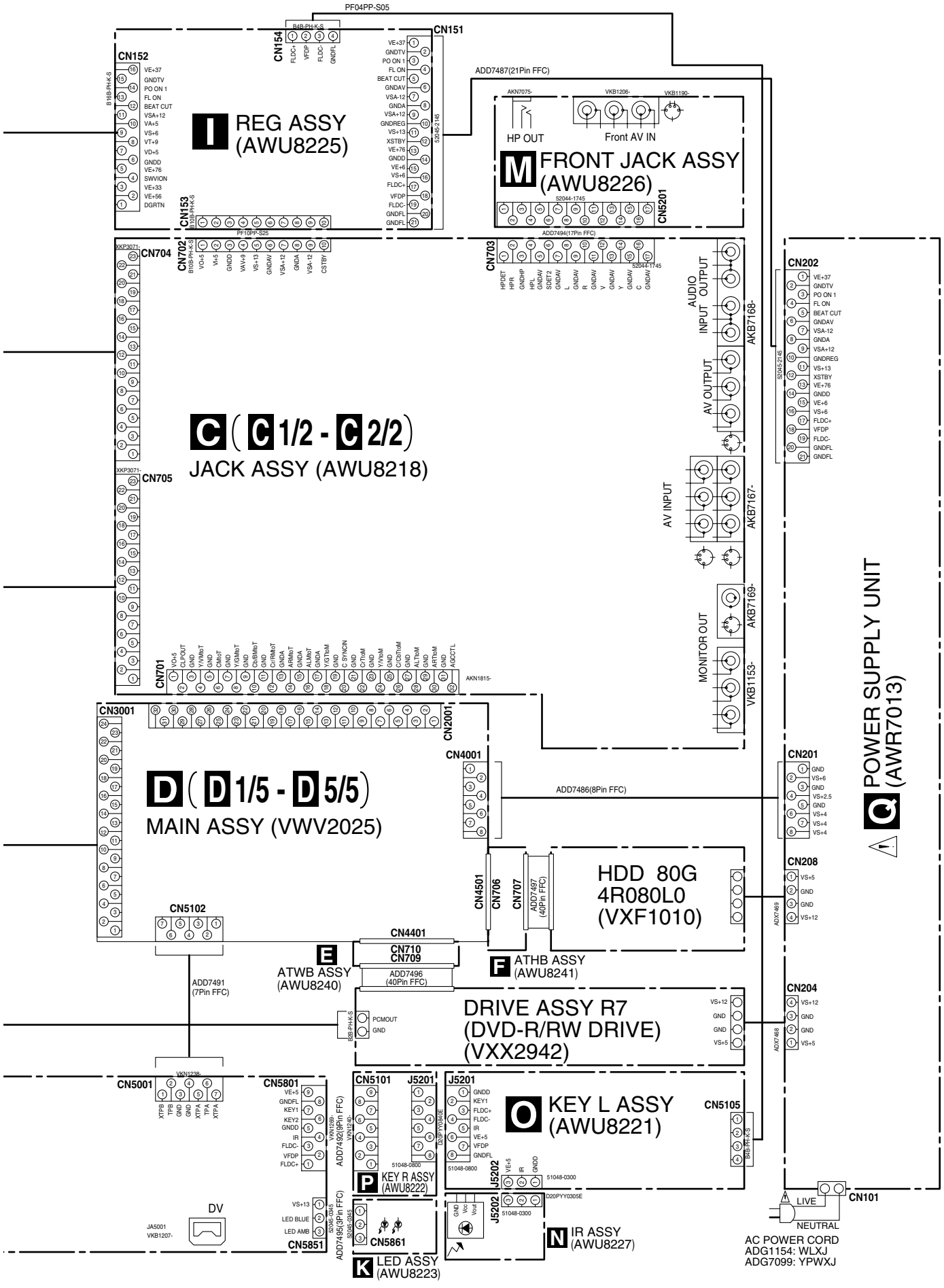



I REG ASSY
CN152
IC156 5V REG
IC154 9V REG
IC155 9V REG
IC152 5V REG
IC153 3.3V REG
5.6V REG
CN153
CN151
CN154
CN808
CN704
CN702
C JACK ASSY
CN701
CN2001
CN3001
IC4004 5V REG
IC4006 5V REG
IC4008 1.2V REG
IC4007 3.3V REG
IC4002 3.3V REG
IC5002 2.5V REG
Q4000
CN4001
D MAIN ASSY
HDD
DRIVE ASSY R7
CN202
CN205
CN201
CN208
CN204
Q POWER SUPPLY UNIT
CN5801
IC5801 FL DRIVER
CN5851
J DISPLAY ASSY
CN5101
P KEY R ASSY
J5201
O KEY L ASSY
CN5105
J5202
CN5861
K LED ASSY
N IR ASSY

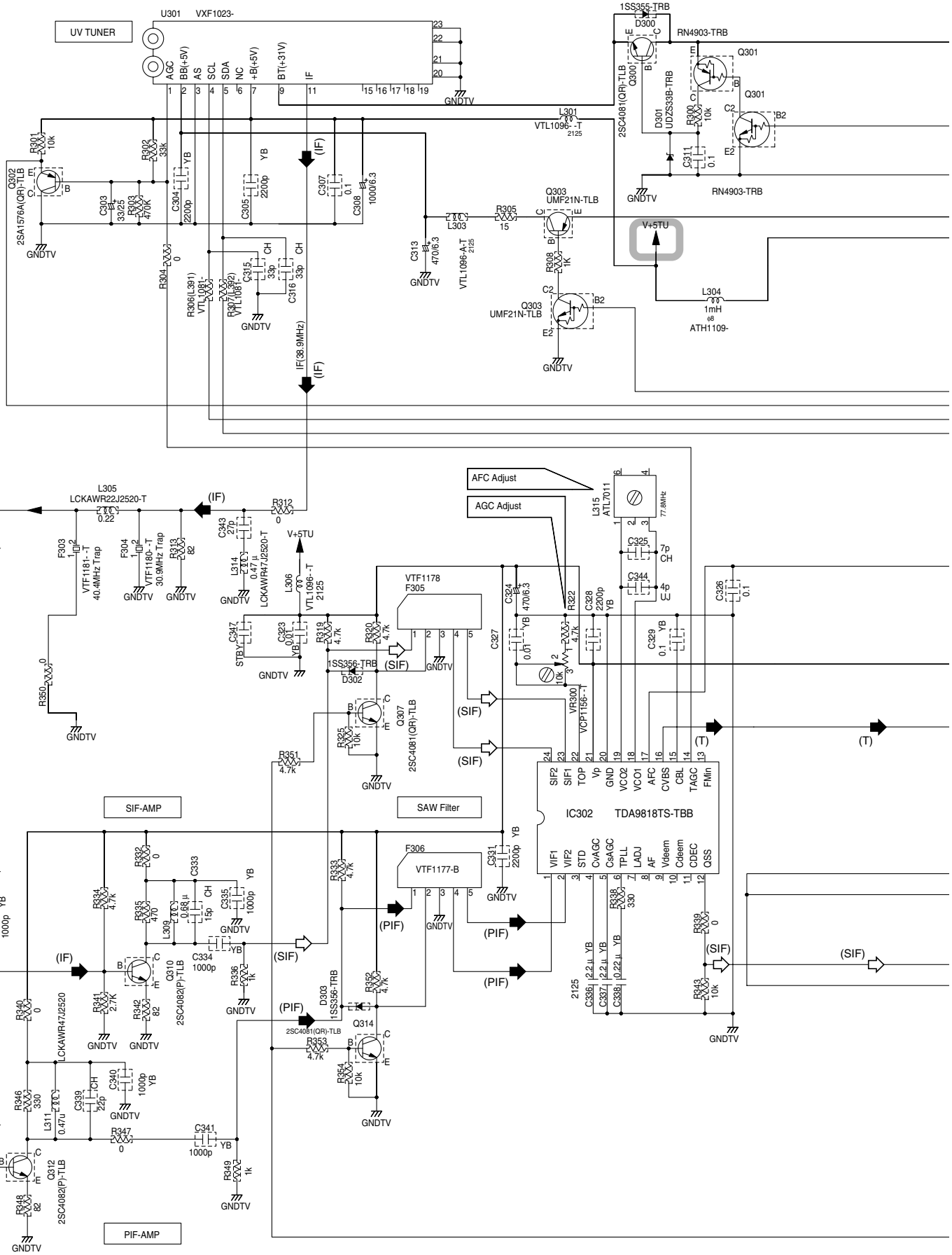
3.2 OVERALL WIRING CONNECTION DIAGRAM



- When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- : The power supply is shown with the marked box.

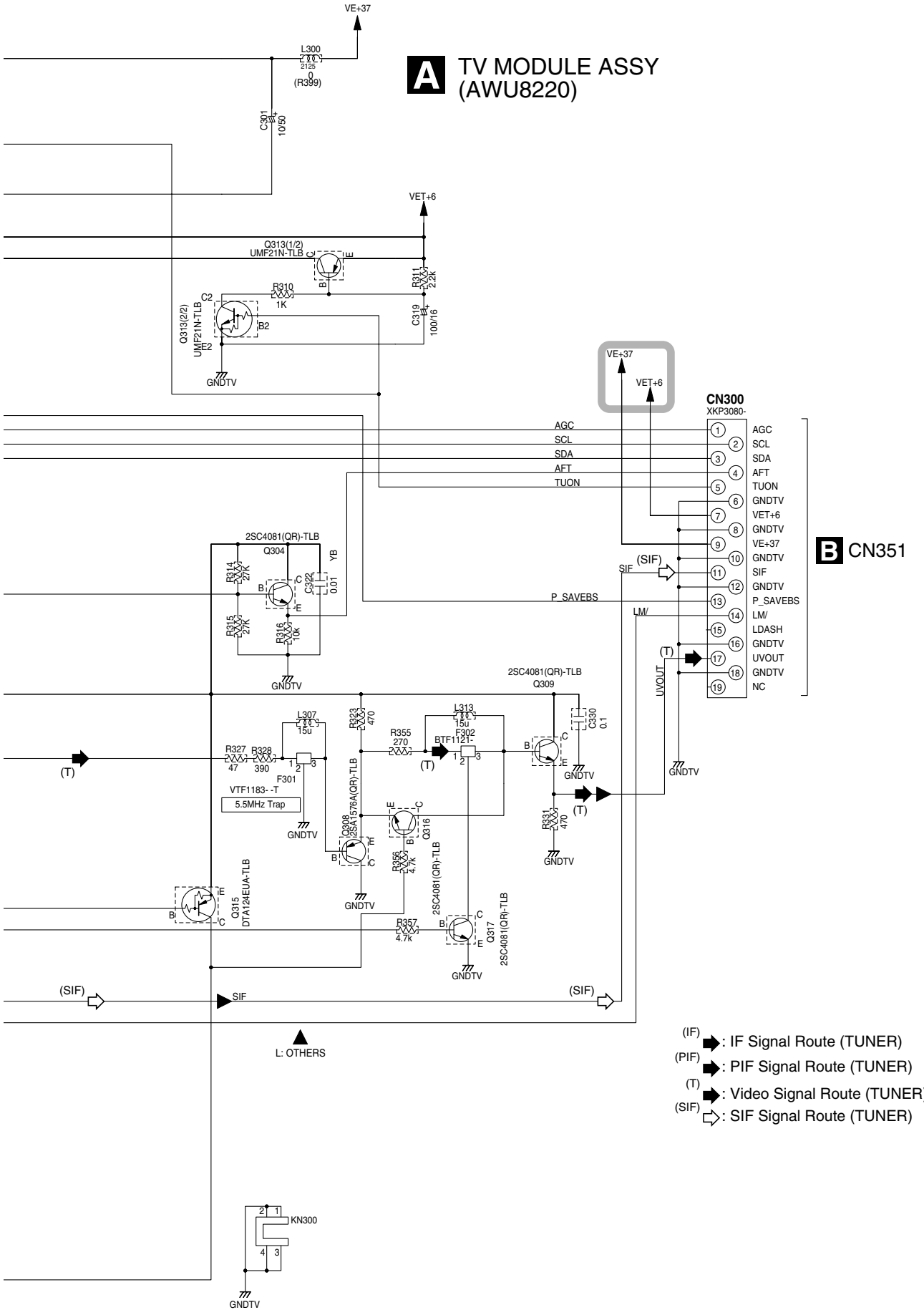

I REG ASSY (AWU8225)
M FRONT JACK ASSY (AWU8226)
C (C 1/2 - C 2/2) JACK ASSY (AWU8218)
D (D 1/5 - D 5/5) MAIN ASSY (VWV2025)
Q POWER SUPPLY UNIT (AWR7013)
E ATWB ASSY (AWU8240)
F ATHB ASSY (AWU8241)
O KEY L ASSY (AWU8221)
P KEY R ASSY (AWU8222)
K LED ASSY (AWU8223)
N IR ASSY (AWU8227)
HDD 80G 4R080L0 (VXF1010)
DRIVE ASSY R7 (DVD-R/RW DRIVE) (VXX2942)
PF04PP-S05
ADD7487(21Pin FFC)
ADD7494(17Pin FFC)
ADD7486(8Pin FFC)
ADD7491 (7Pin FFC)
ADD7496 (40Pin FFC)
ADD7497 (40Pin FFC)
ADD7492(9Pin FFC)
ADD7495(3Pin FFC)
HP OUT
Front AV IN
AUDIO INPUT OUTPUT
AV OUTPUT
AV INPUT
MONITOR OUT
DV
LIVE
NEUTRAL
AC POWER CORD
ADG1154: WLXJ
ADG7099: YPWXJ

3.3 TV MODULE ASSY



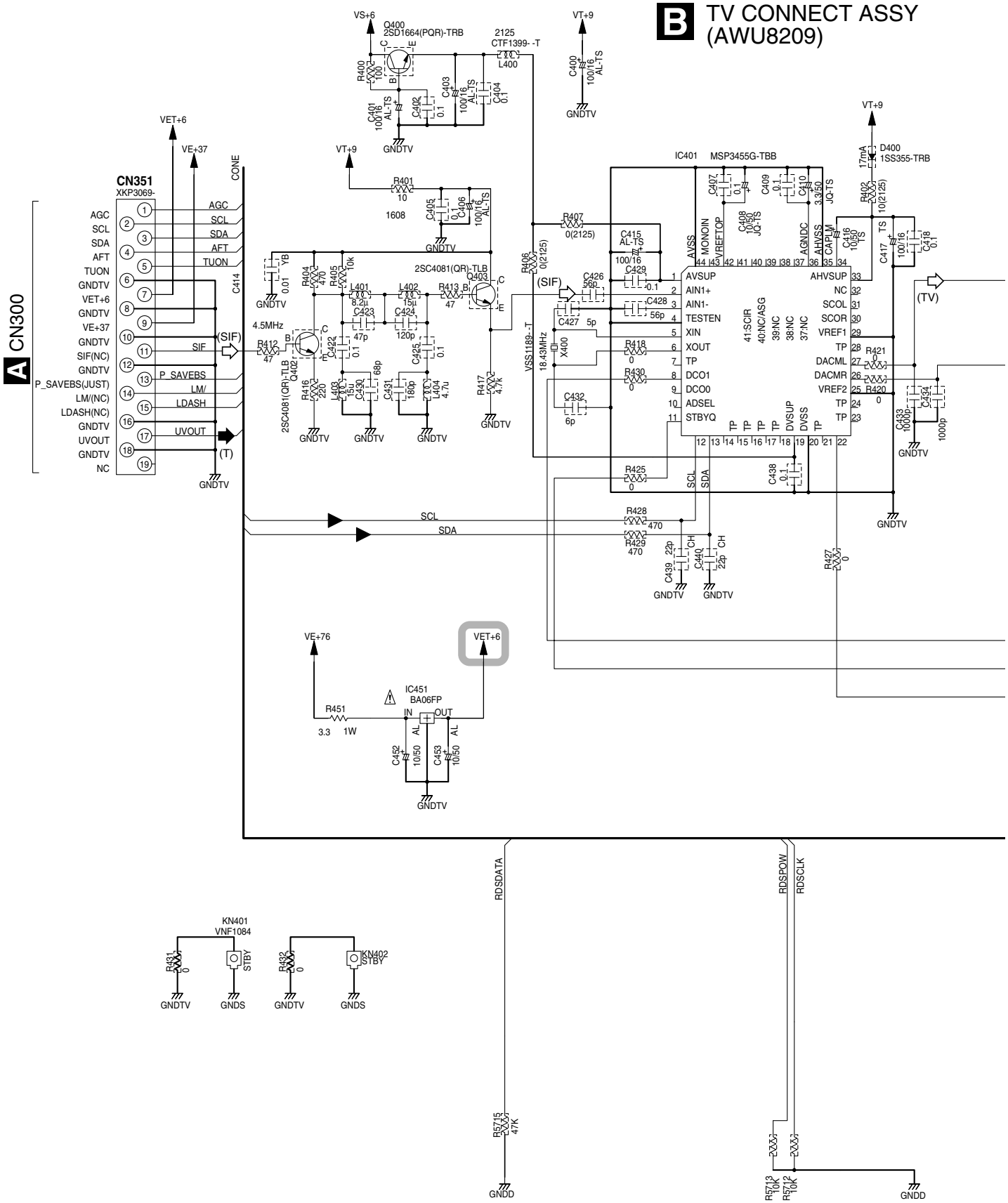
A

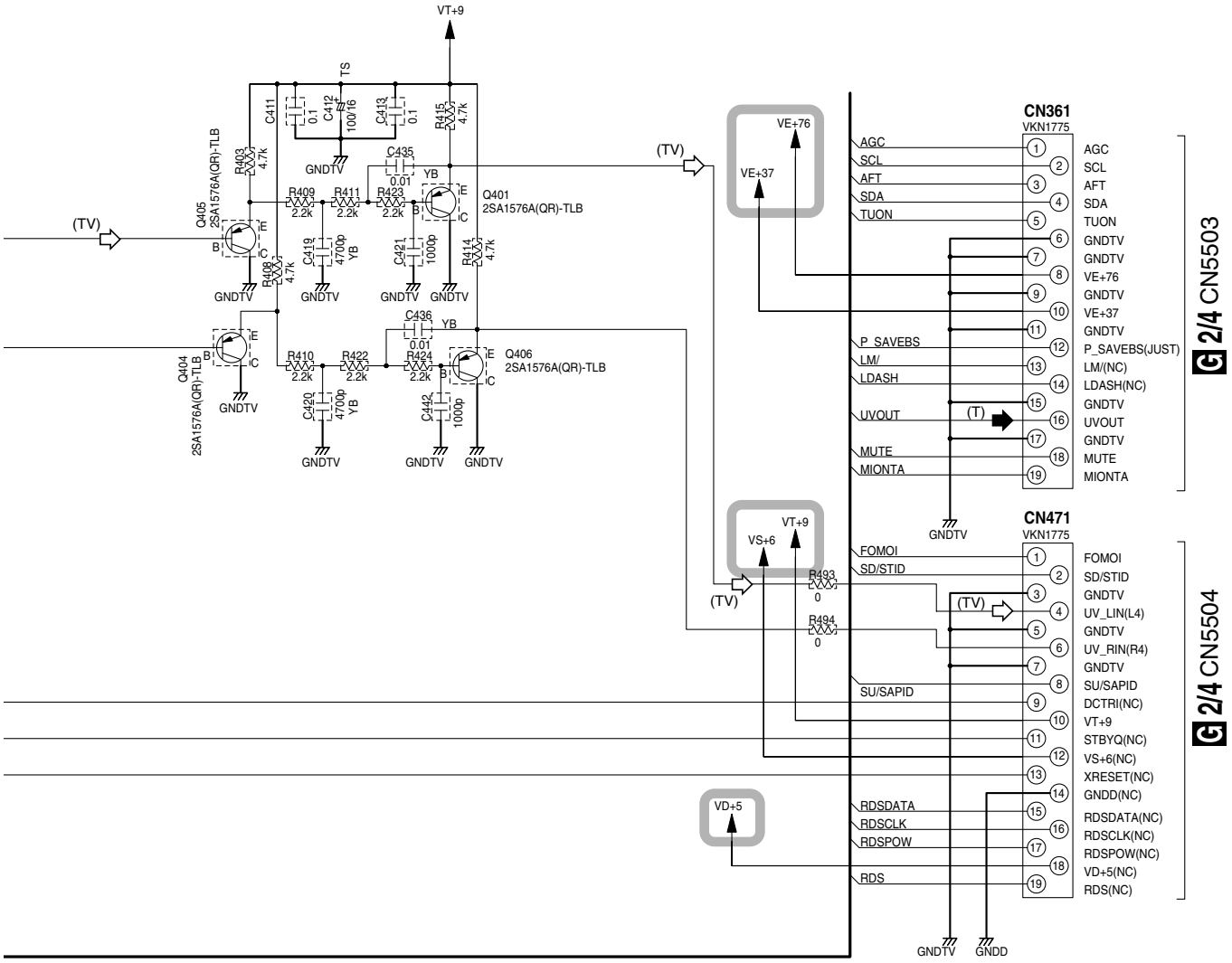
A TV MODULE ASSY (AWU8220)



(IF) : IF Signal Route (TUNER)
(PIF) : PIF Signal Route (TUNER)
(T) : Video Signal Route (TUNER)
(SIF) : SIF Signal Route (TUNER)

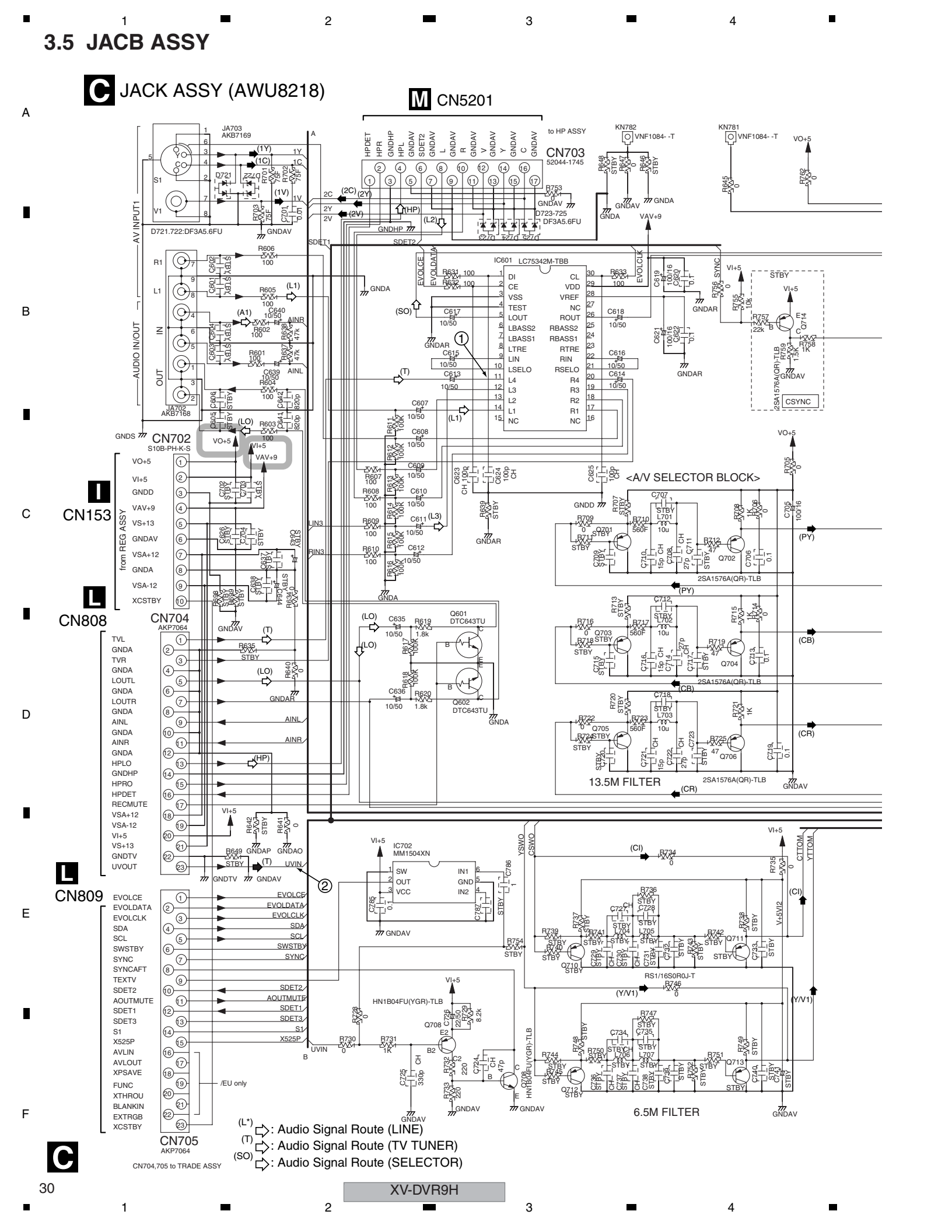
3.4 TV CONNECT ASSY

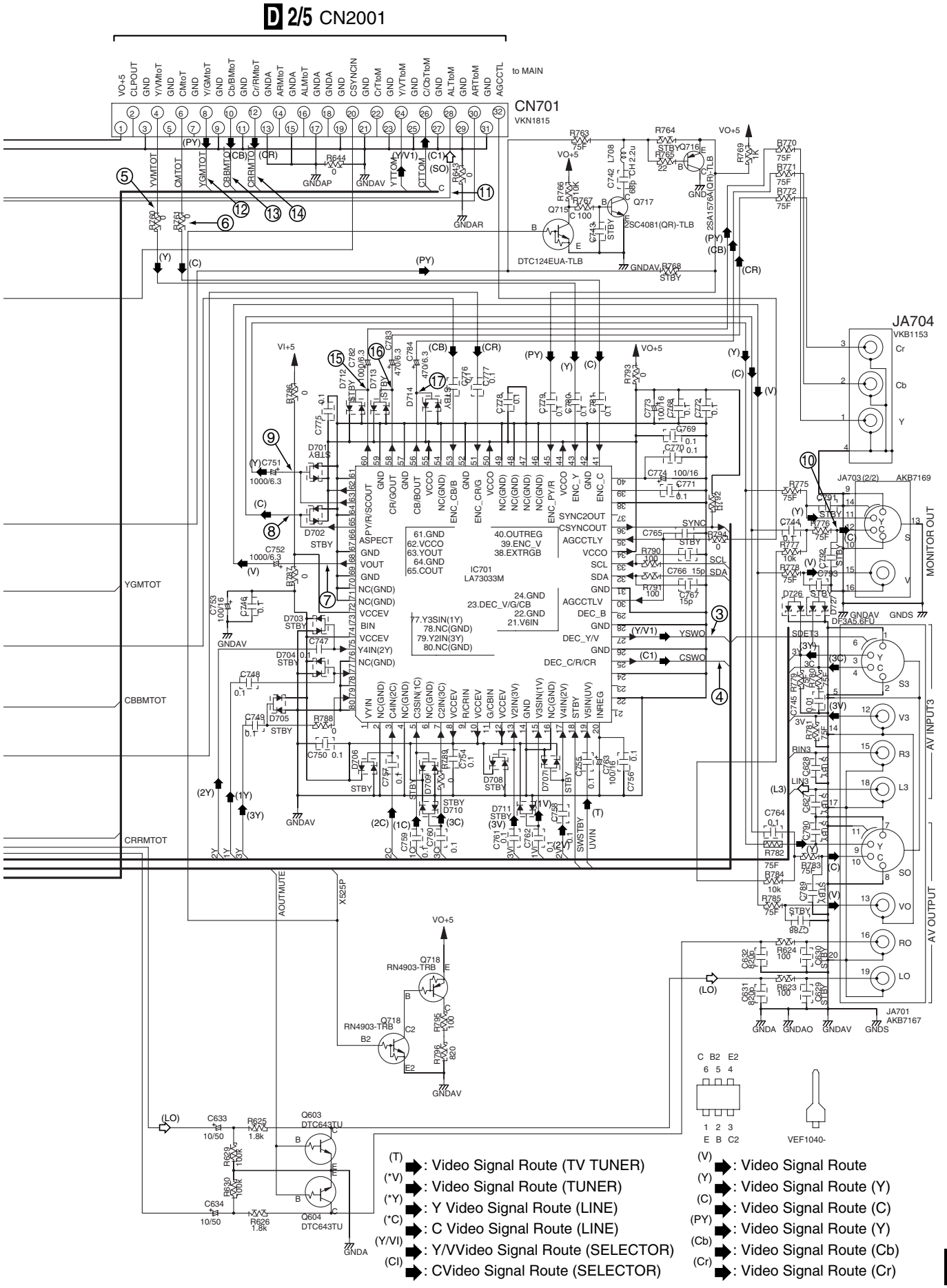




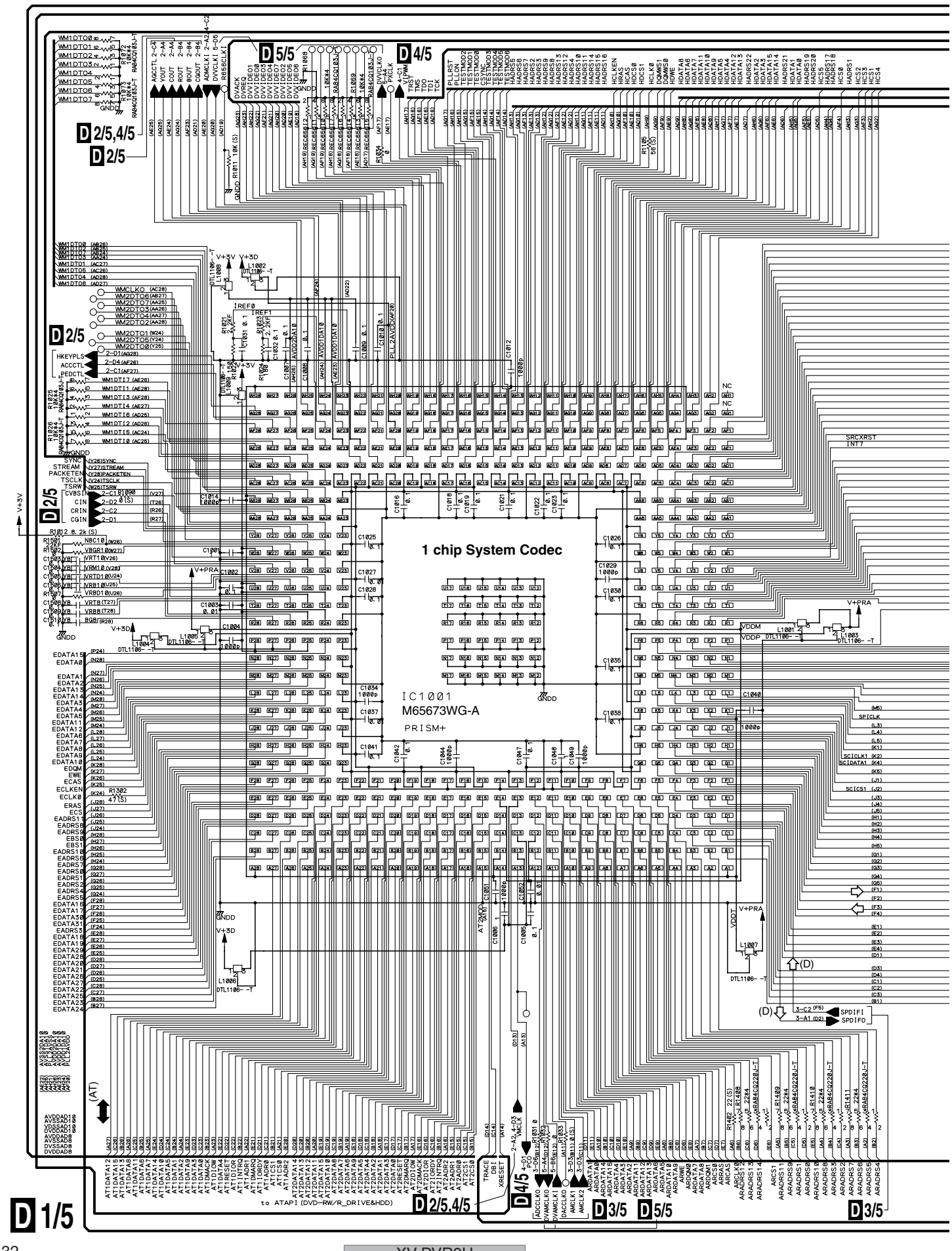
(T) ➡: Video Signal Route (TUNER)
(TV) ⇨: Audio Signal Route (TV)
(SIF) ⇨: SIF Signal Route (TUNER)

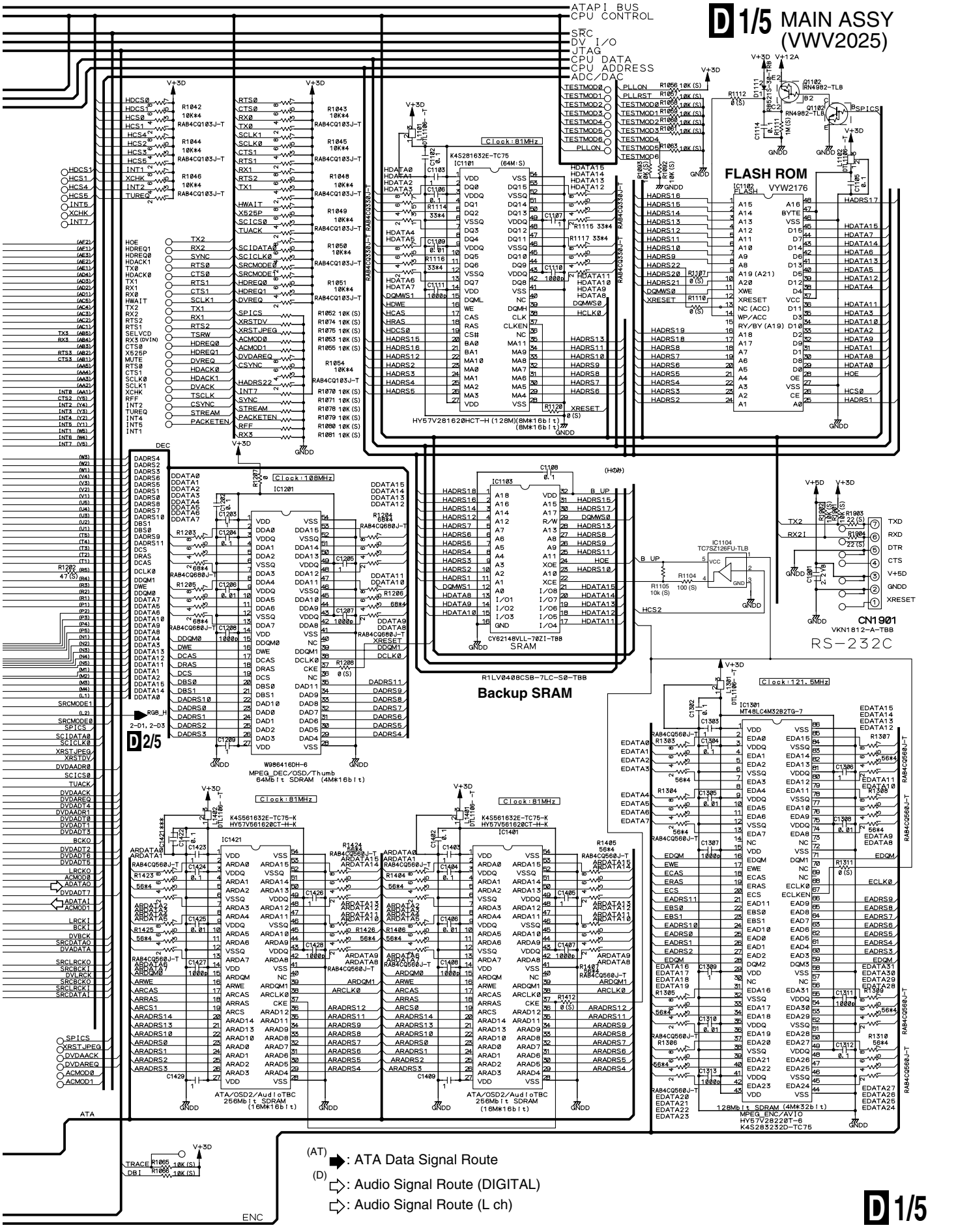
3.5 JACB ASSY


C JACK ASSY (AWU8218)
M CN5201
CN703
52044-1745
to HP ASSY
JA703
AKB7169
AV INPUT1
AUDIO IN/OUT
IN
OUT
D721.722:DF3A5.6FU
JA702
AKB7168
CN702
S10B-PH-K-S
I
CN153
from REG ASSY
L
CN808
CN704
AKP7064
L
CN809
CN705
AKP7064
CN704,705 to TRADE ASSY
IC601 LC75342M-TBB
IC702 MM1504XN
HN1B04FU(YGR)-TLB
2SA1576A(QR)-TLB
DTC643TU
KN782
VNF1084- -T
KN781
VNF1084- -T
<A/V SELECTOR BLOCK>
13.5M FILTER
6.5M FILTER
RS1/16S0R0J-T
CSYNC
/EU only
(L*) : Audio Signal Route (LINE)
(T) : Audio Signal Route (TV TUNER)
(SO) : Audio Signal Route (SELECTOR)


D 2/5 CN2001
CN701
VKN1815
to MAIN
JA704
VKB1153
JA703 (2/2)
AKB7169
JA701
AKB7167
IC701
LA73033M
MONITOR OUT
AV INPUT3
AV OUTPUT
YGMTOT
CBBMTOT
CRRMTOT
AOUTMUTE
X525P
VO+5
VI+5
GNDAV
GNDA
GNDAO
GNDS
DTC124EUA-TLB
2SA1576A(QR)-TLB
2SC4081(QR)-TLB
RN4903-TRB
DTC643TU
VEF1040-
(T) : Video Signal Route (TV TUNER)
(*V) : Video Signal Route (TUNER)
(*Y) : Y Video Signal Route (LINE)
(*C) : C Video Signal Route (LINE)
(Y/VI) : Y/VVideo Signal Route (SELECTOR)
(CI) : CVideo Signal Route (SELECTOR)
(V) : Video Signal Route
(Y) : Video Signal Route (Y)
(C) : Video Signal Route (C)
(PY) : Video Signal Route (Y)
(Cb) : Video Signal Route (Cb)
(Cr) : Video Signal Route (Cr)

3.6 MAIN ASSY (1/5)




D 1/5 MAIN ASSY (VWV2025)
ATAPI BUS
CPU CONTROL
SRC
DV I/O
JTAG
CPU DATA
CPU ADDRESS
ADC/DAC
FLASH ROM
VYW2176
Backup SRAM
SRAM
CN1901
RS-232C
D 2/5
ATA
ENC
(AT) : ATA Data Signal Route
(D) : Audio Signal Route (DIGITAL)
: Audio Signal Route (L ch)
D 1/5

3.7 MAIN ASSY (2/5)

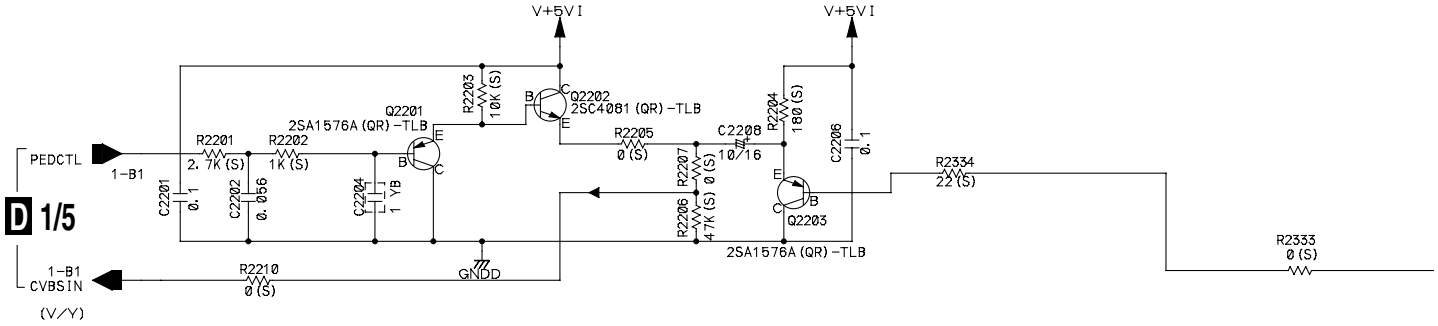
A

D 2/5 MAIN ASSY (VWV2025)

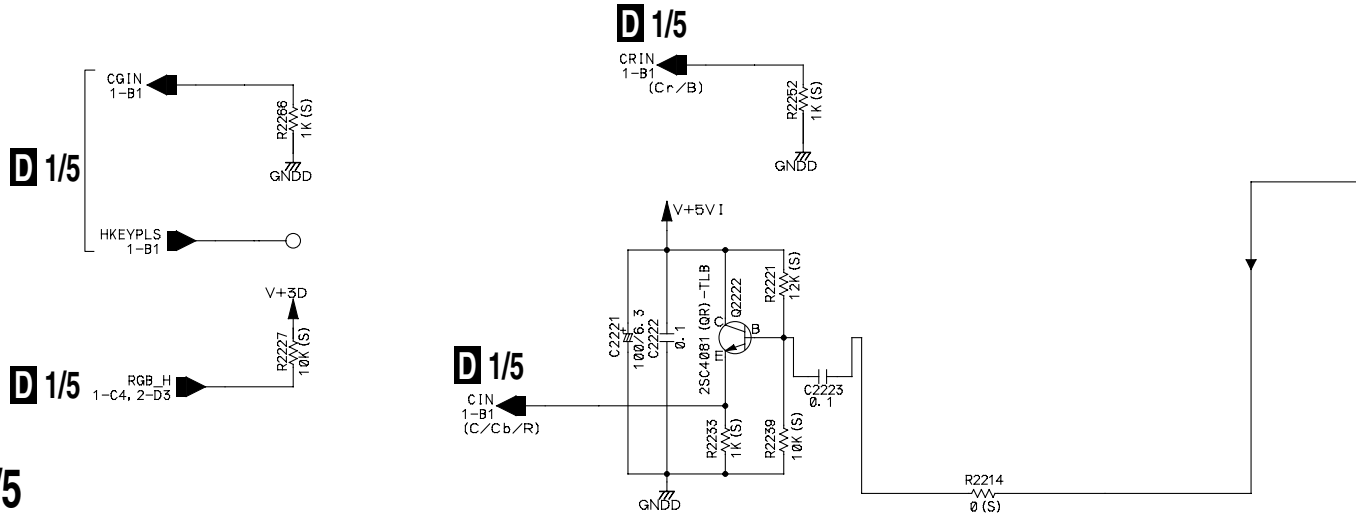
B

C

D

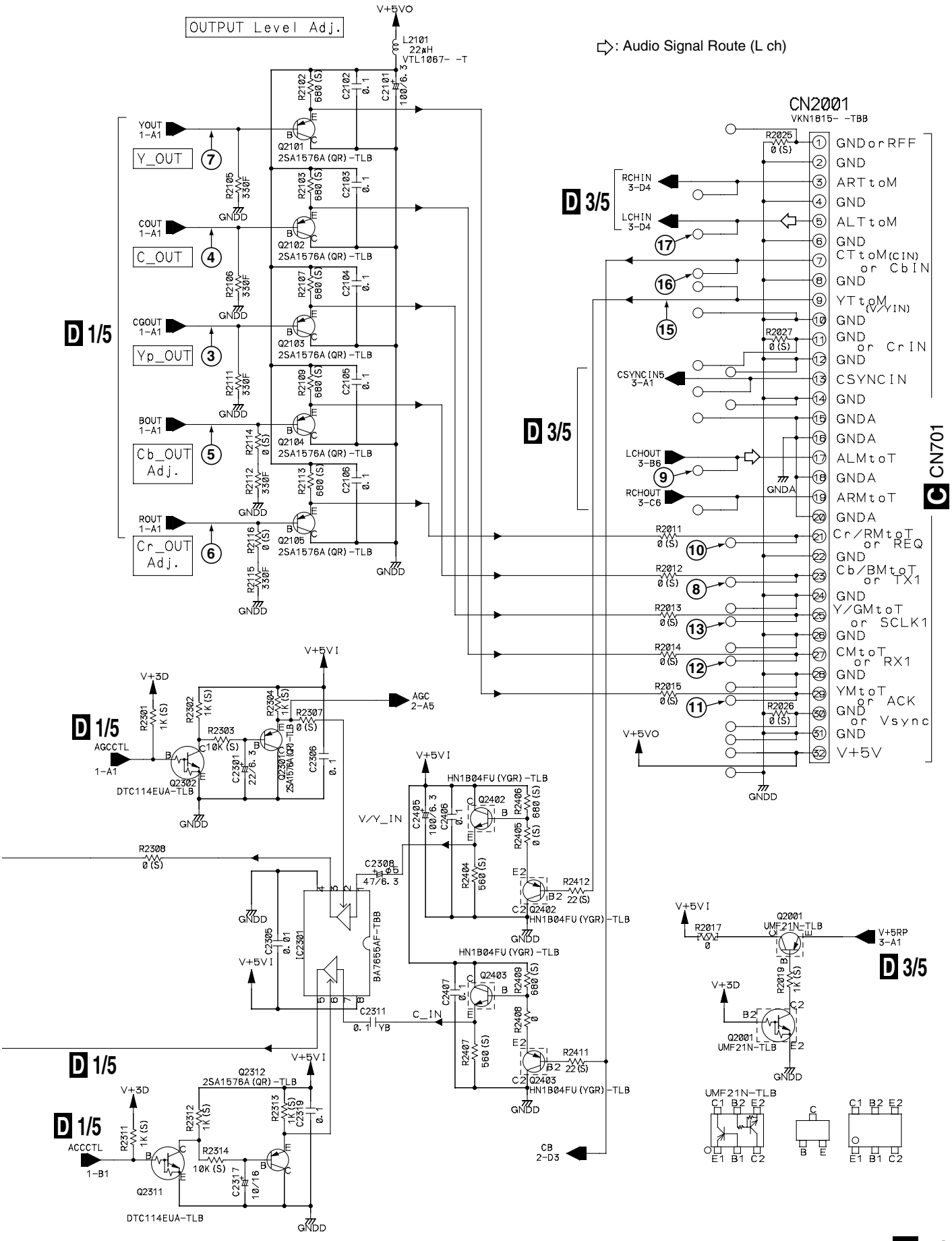


E

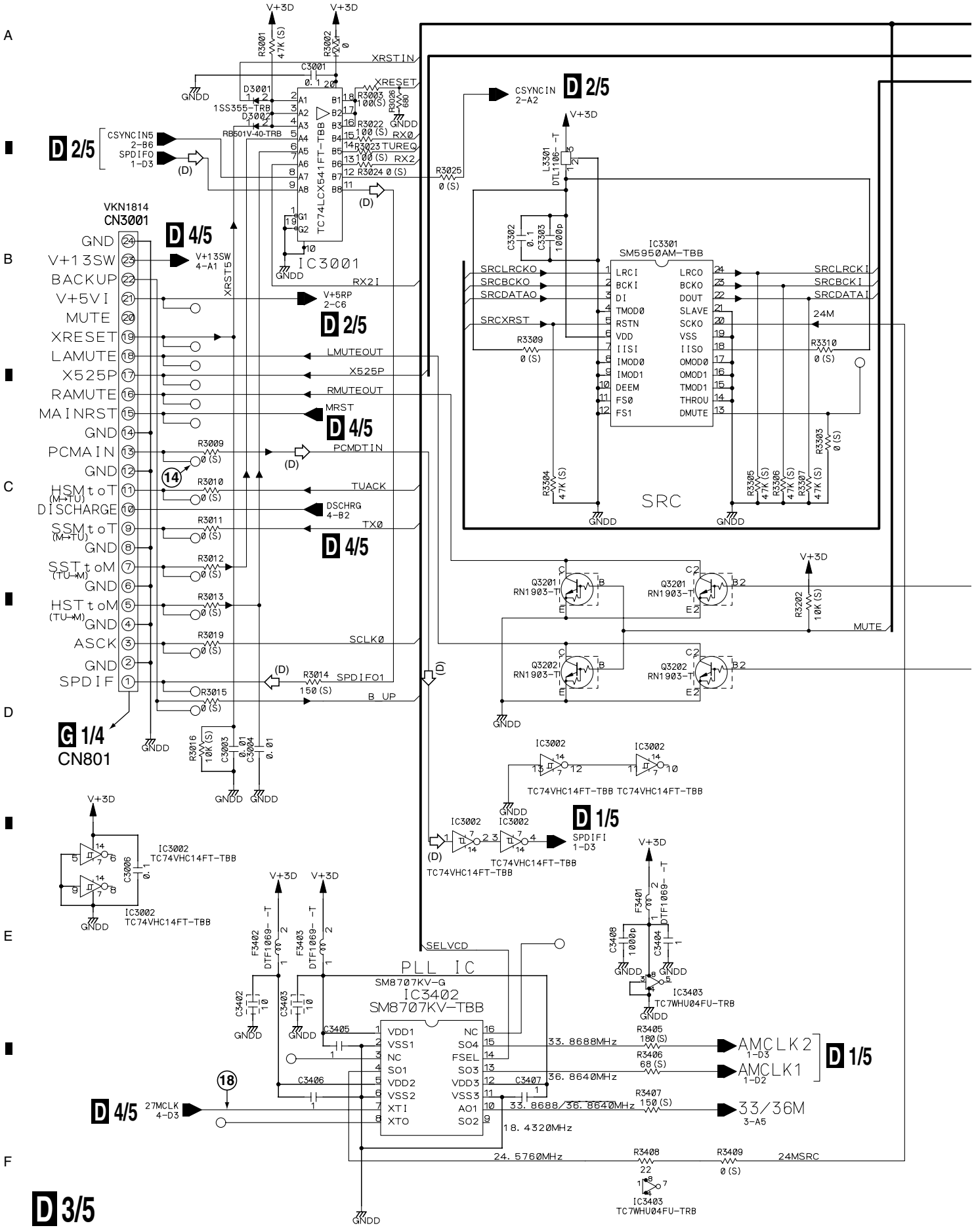


F

D 2/5


OUTPUT Level Adj.
: Audio Signal Route (L ch)
V+5VO
L2101
22µH
VTL1067- -T
YOUT
1-A1
Y_OUT
COUT
1-A1
C_OUT
CGOUT
1-A1
Yp_OUT
BOUT
1-A1
Cb_OUT
Adj.
ROUT
1-A1
Cr_OUT
Adj.
Q2101
2SA1576A (QR) -TLB
Q2102
2SA1576A (QR) -TLB
Q2103
2SA1576A (QR) -TLB
Q2104
2SA1576A (QR) -TLB
Q2105
2SA1576A (QR) -TLB
GNDD
D 1/5
D 3/5
CN2001
VKN1615- -TBB
CN701
GNDorRFF
GND
ARTtoM
GND
ALTtoM
GND
CTtoM(CIN)
or CbIN
GND
YTtoM
(Y/YIN)
GND
GND
or CrIN
GND
CSYNCIN
GND
GNDA
GNDA
ALMtoT
GNDA
ARMtoT
GNDA
Cr/RMtoT
or REQ
GND
Cb/BMtoT
or TX1
GND
Y/GMtoT
or SCLK1
GND
CMtoT
or RX1
GND
YMtoT
or ACK
GND
or Vsync
GND
V+5V
RCHIN
3-D4
LCHIN
3-D4
CSYNCIN5
3-A1
LCHOUT
3-B6
RCHOUT
3-C6
V+5VI
V+3D
AGC
2-A5
AGCCTL
1-A1
Q2302
DTC114EUA-TLB
Q2301
2SA1576A (QR) -TLB
IC2301
BA7655AF-TBB
V/Y_IN
C_IN
CB
2-D3
HN1B04FU (YGR) -TLB
Q2402
Q2403
Q2312
2SA1576A (QR) -TLB
ACCCTL
1-B1
Q2311
DTC114EUA-TLB
Q2001
UMF21N-TLB
V+5RP
3-A1
UMF21N-TLB
D 2/5

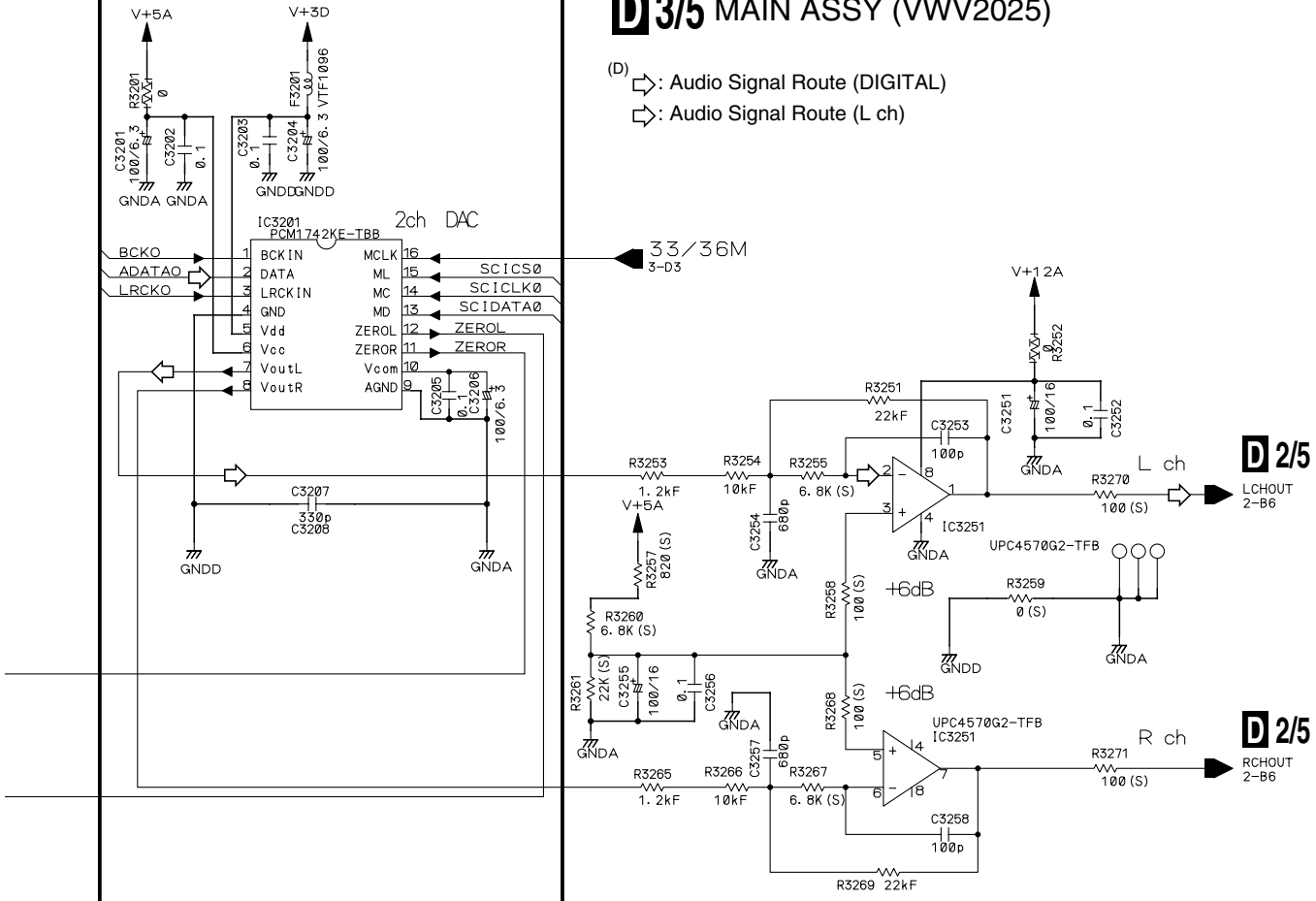
3.8 MAIN ASSY (3/5)

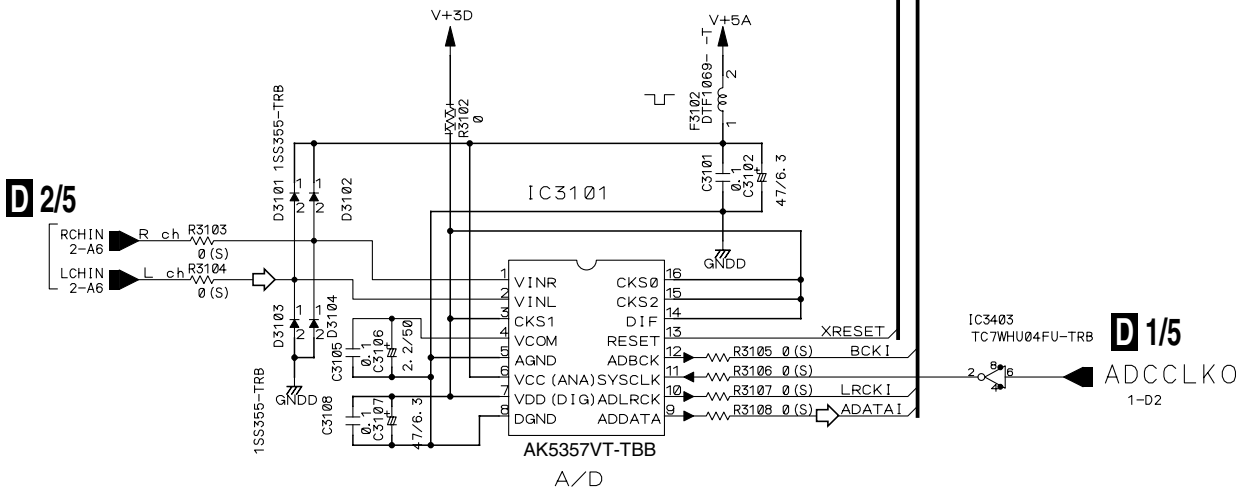


CPU CONTROL BUS
DAC/ADC
SRC
D 1/5

D 3/5 MAIN ASSY (VWV2025)

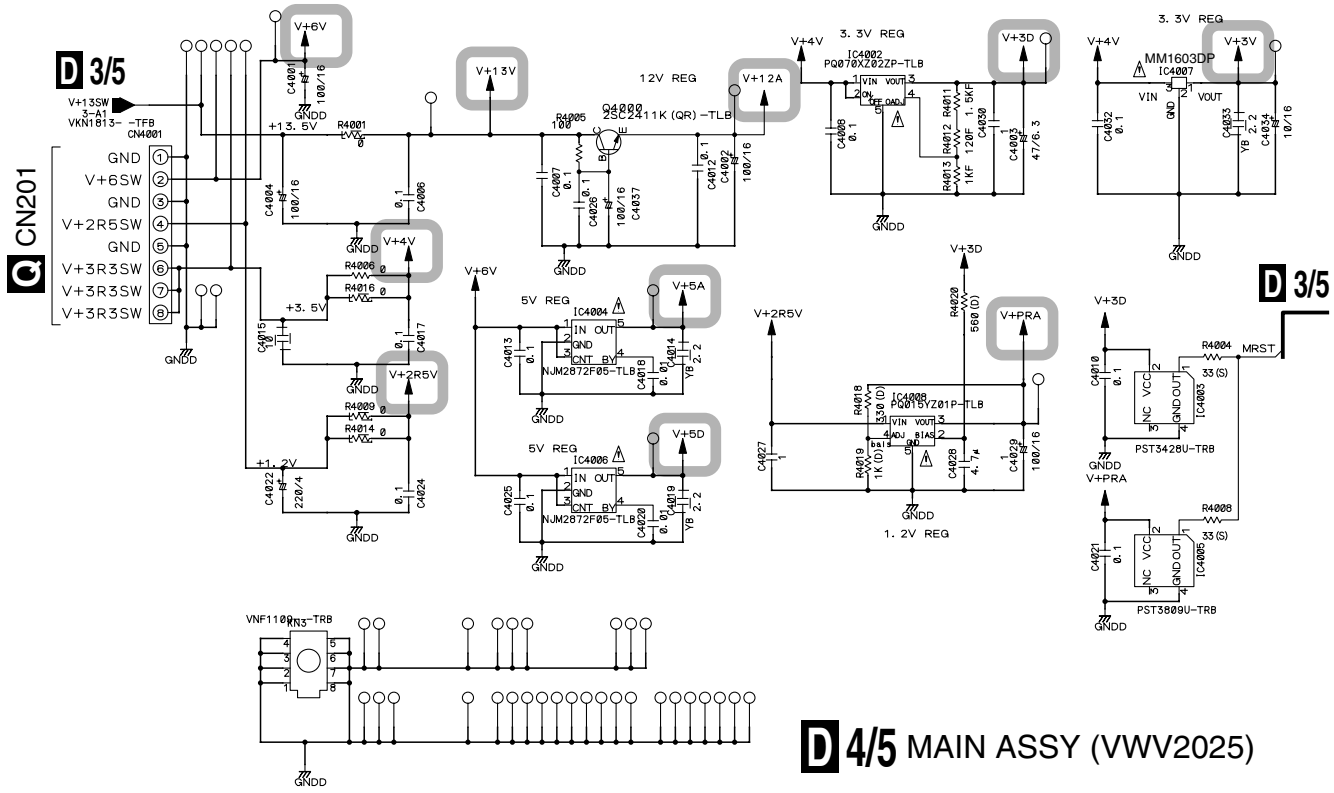
(D) ⇨: Audio Signal Route (DIGITAL)
⇨: Audio Signal Route (L ch)

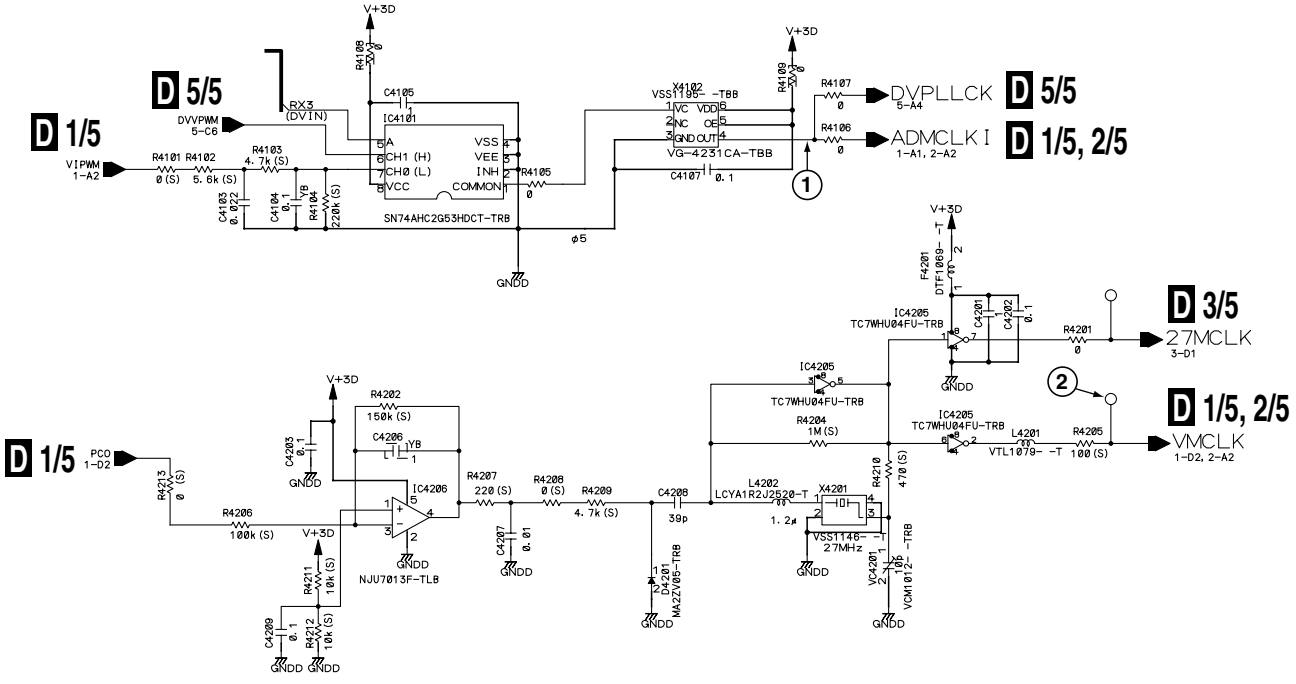


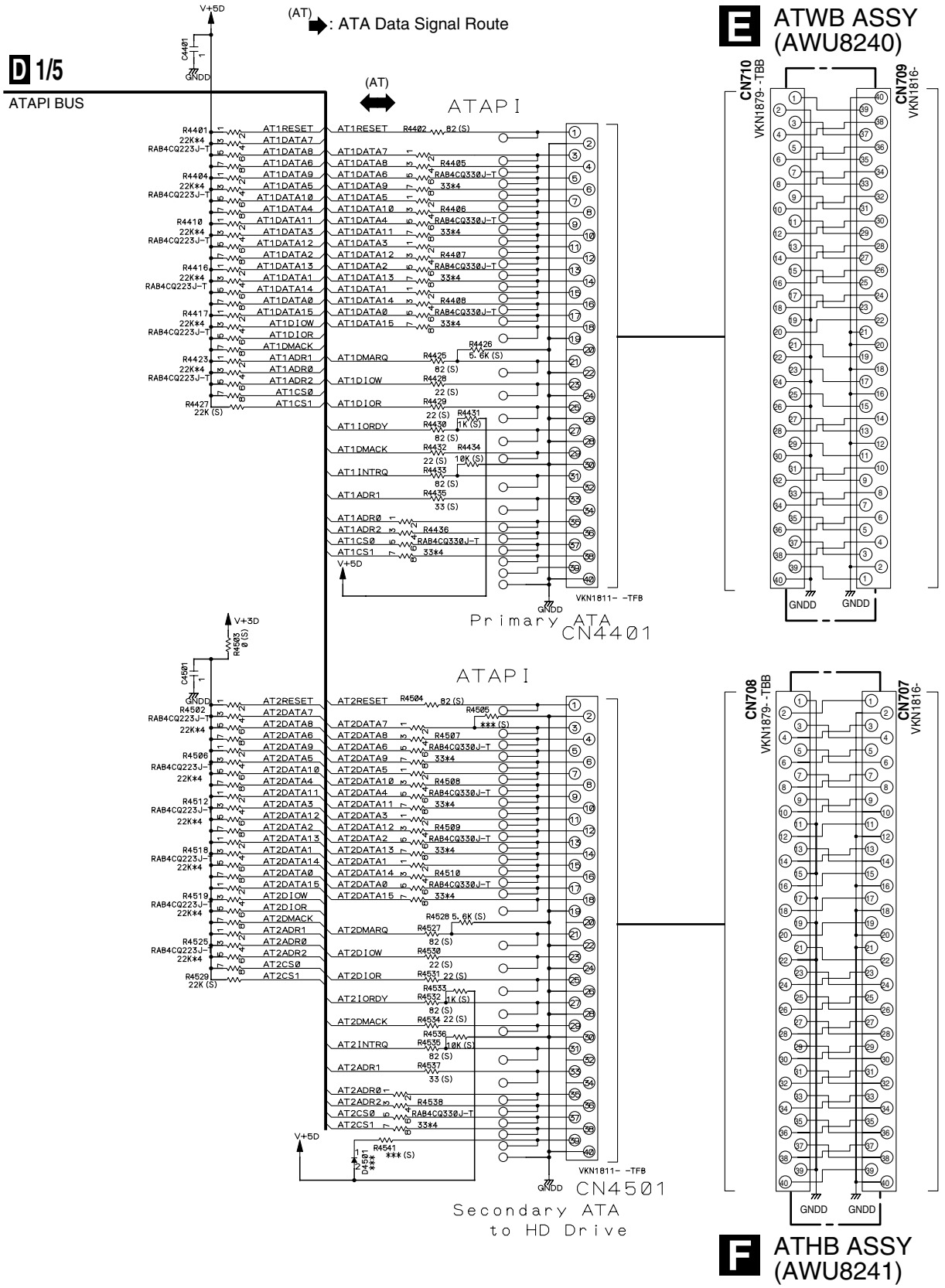


D 3/5

3.9 MAIN (4/5), ATWB and ATHB ASSYS

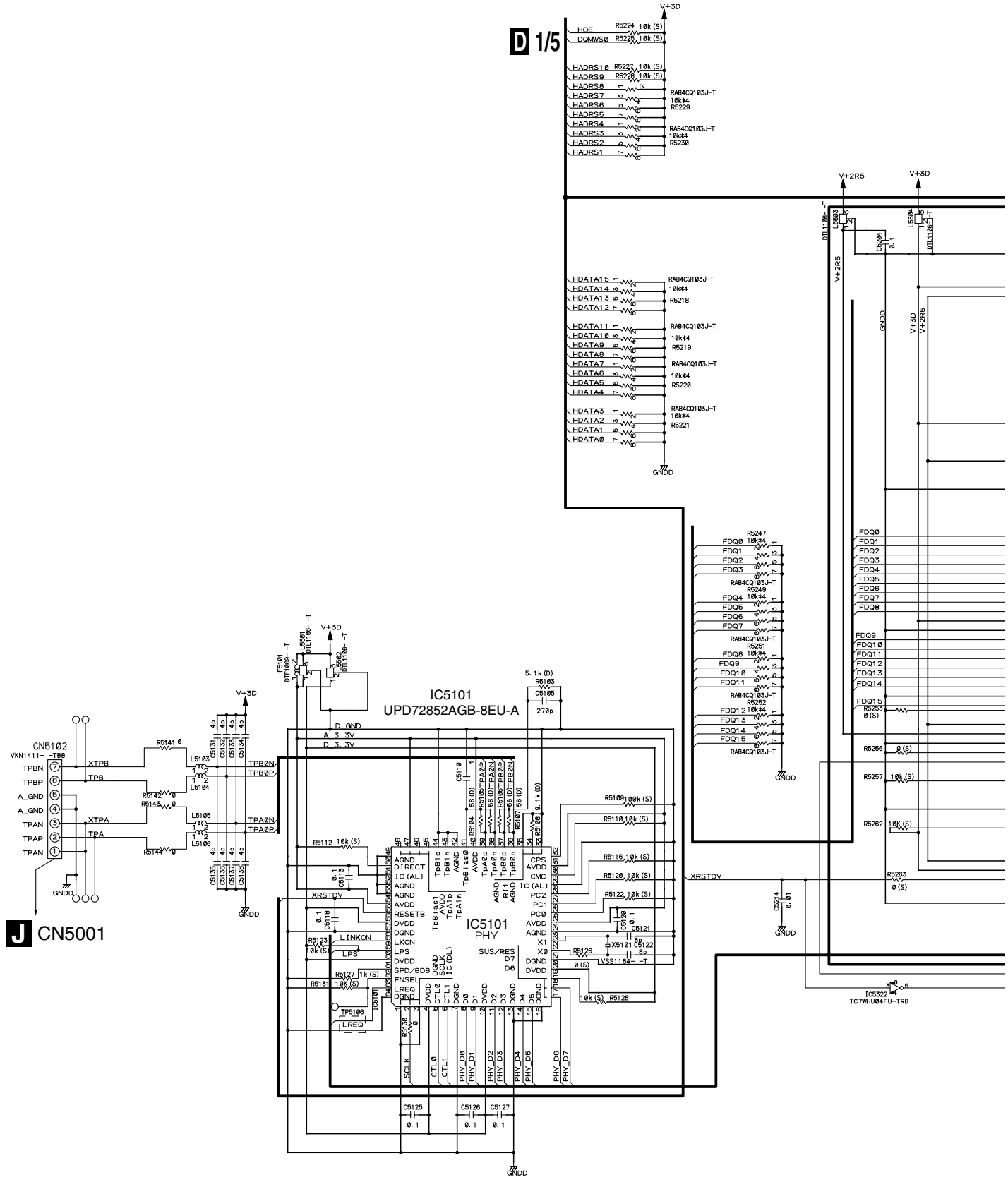




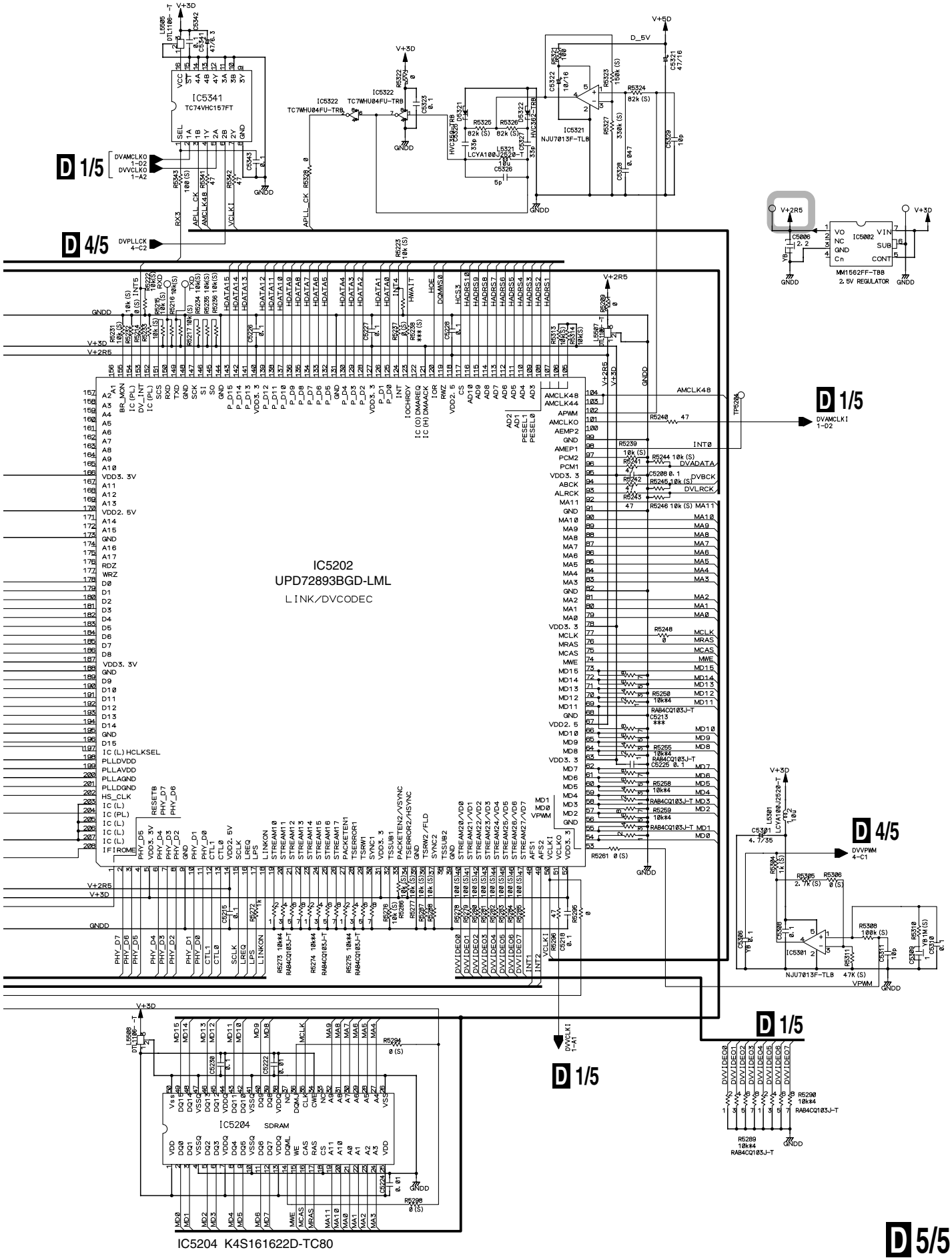

(AT) : ATA Data Signal Route
D 1/5
ATAPI BUS
ATAPI
Primary ATA
CN4401
Secondary ATA
to HD Drive
CN4501
E ATWB ASSY
(AWU8240)
F ATHB ASSY
(AWU8241)
CN710
VKN1879- -TBB
CN709
VKN1816-
CN708
VKN1879- -TBB
CN707
VKN1816-
To DRIVE ASSY R7
To HDD
GNDD
V+5D
V+3D
VKN1811- -TFB

3.10 MAIN ASSY (5/5)

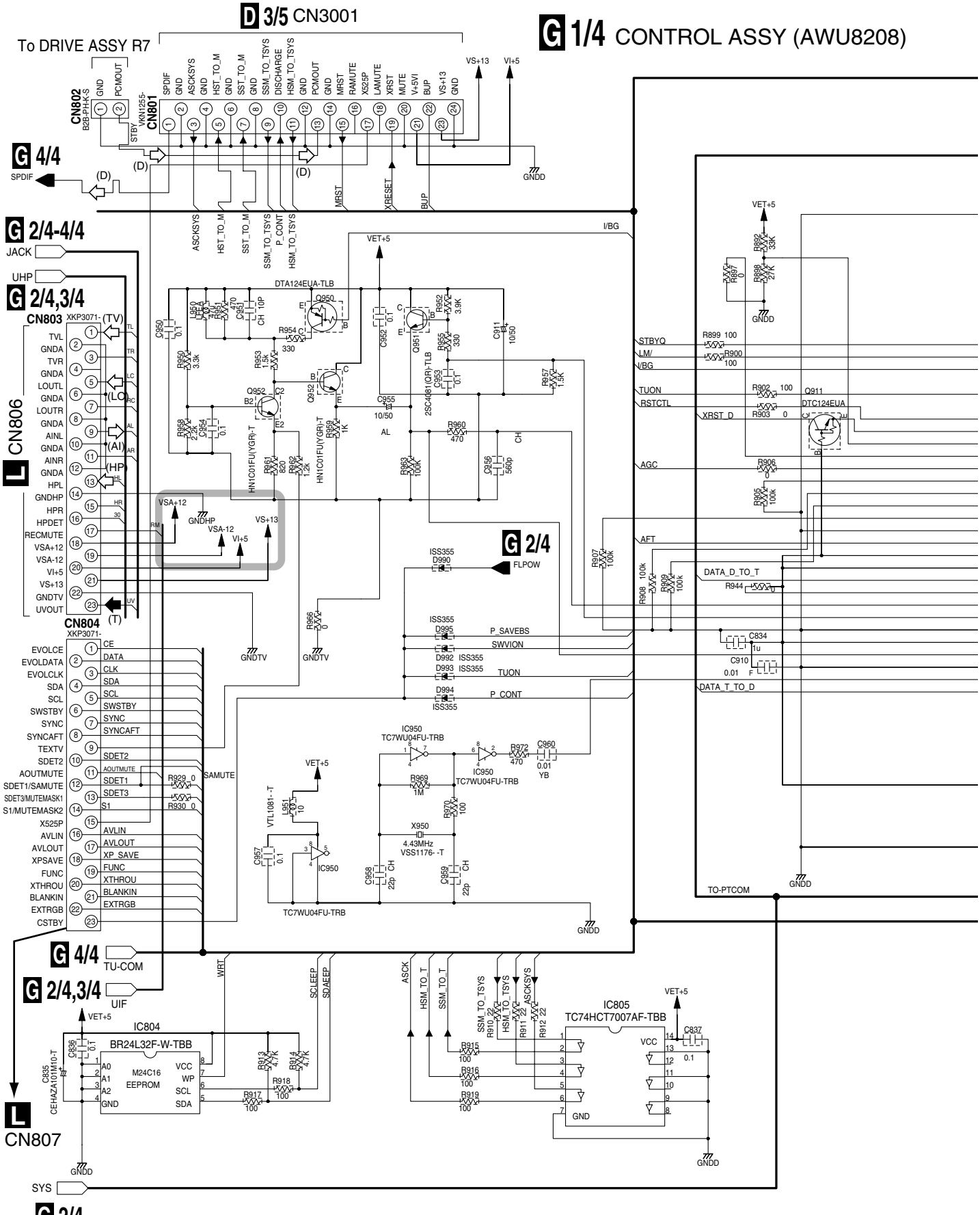
D 5/5 MAIN ASSY (VWV2025)

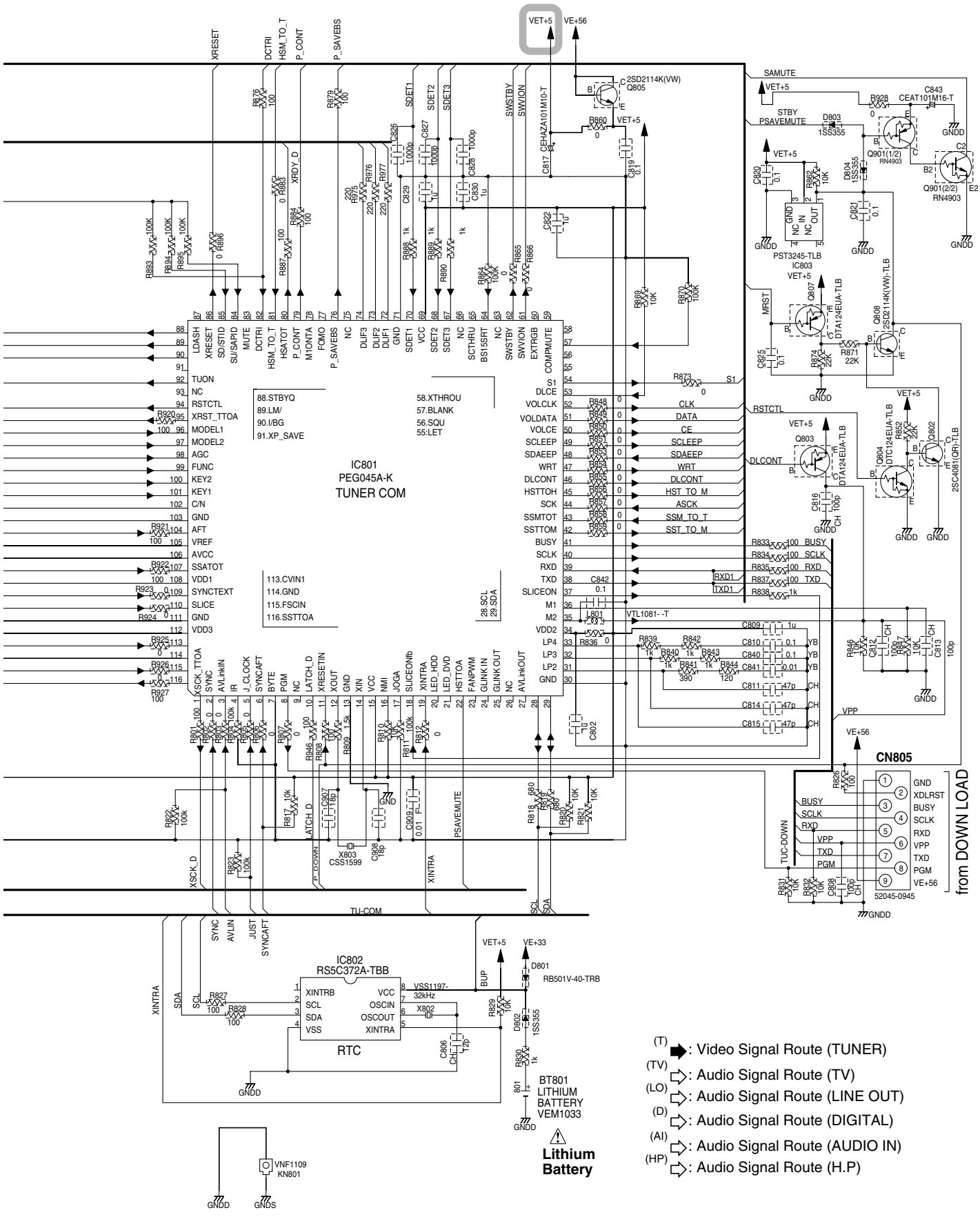


D 5/5

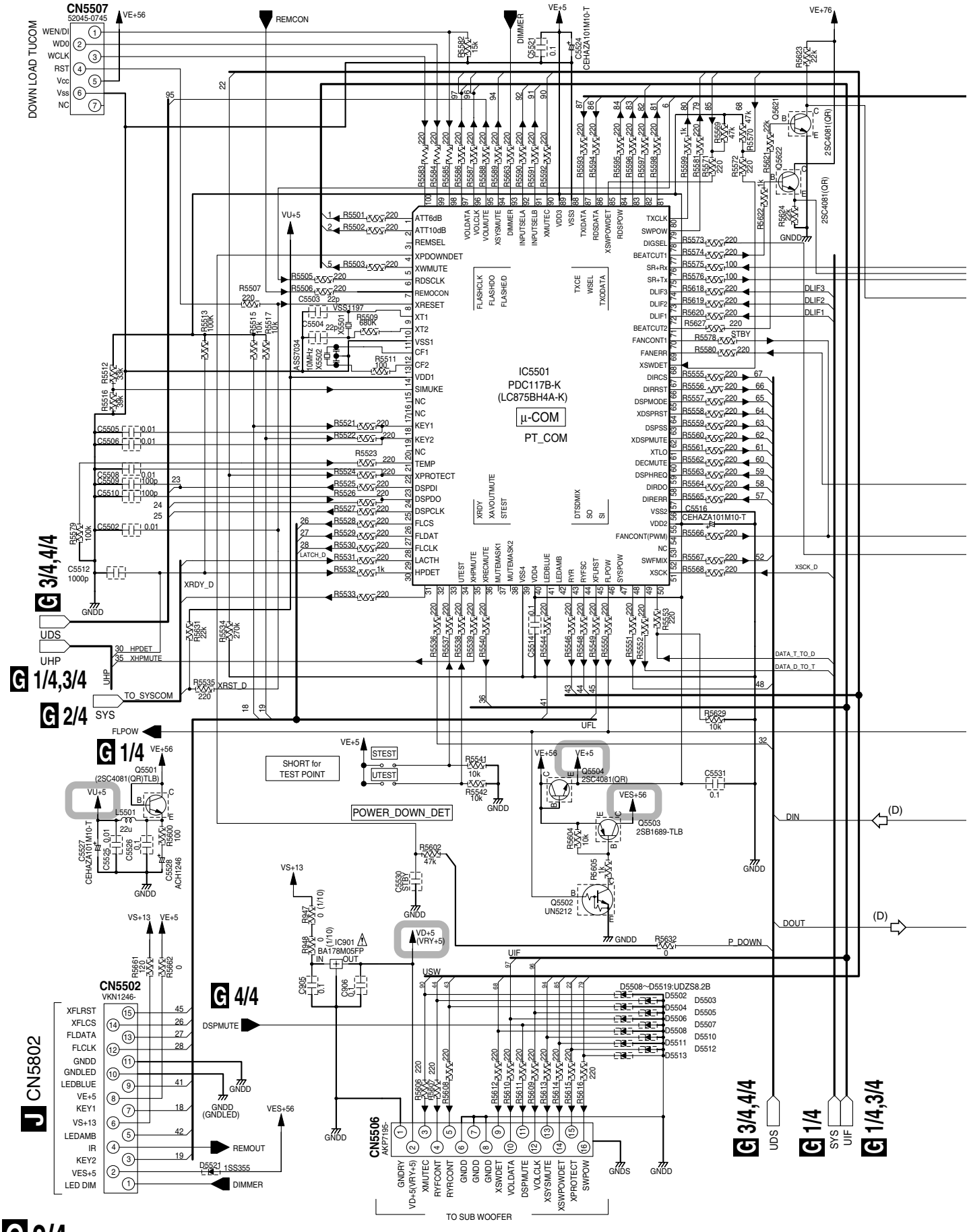

IC5202
UPD72893BGD-LML
LINK/DVCODEC
IC5204 K4S161622D-TC80
IC5204 SDRAM
IC5341
TC74VHC157FT
IC5321
NJU7013F-TLB
IC5322
TC7WHU04FU-TRB
IC5002
MM1562FF-T88
2.5V REGULATOR
D 1/5
D 4/5
D 5/5
V+3D
V+5D
V+2R5
GNDD
DVAMCLKO 1-D2
DVVCLKO 1-A2
DVPLLCK 4-C2
DVAMCLKI 1-D2
DVVCLKI 1-A1
DVVPWM 4-C1
VPWM
APLL_CK
AMCLK48
VCLK1
INT0
DVADATA
DVBCK
DVLRCK
MCLK
MRAS
MCAS
MWE
RESETB
PHY_D7
PHY_D6
PHY_D5
PHY_D4
PHY_D3
PHY_D2
PHY_D1
PHY_D0
SCLK
LREQ
LPS
LINKON
DVVIDEO0
DVVIDEO1
DVVIDEO2
DVVIDEO3
DVVIDEO4
DVVIDEO5
DVVIDEO6
DVVIDEO7

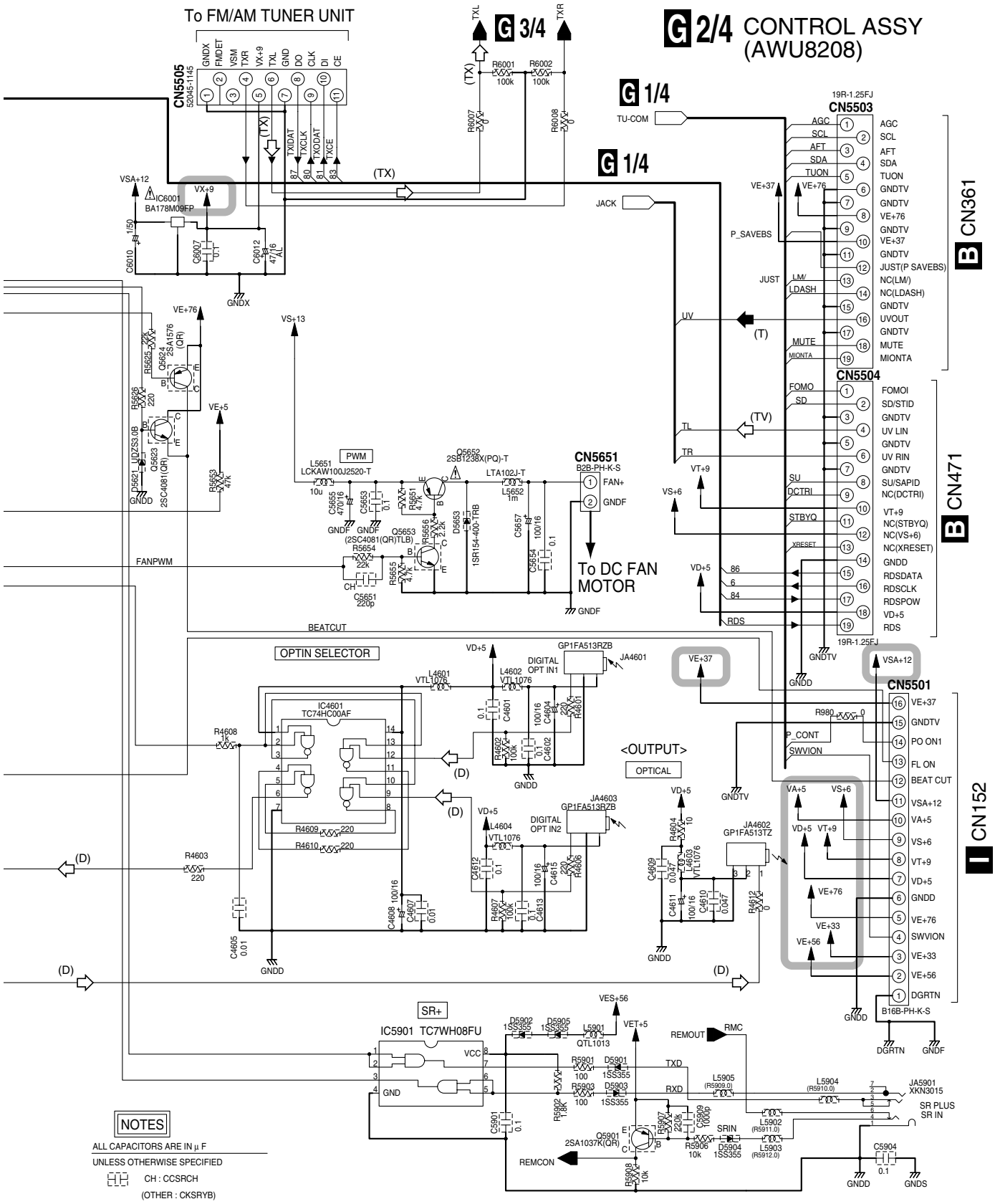
3.11 CONTROL ASSY (1/4)



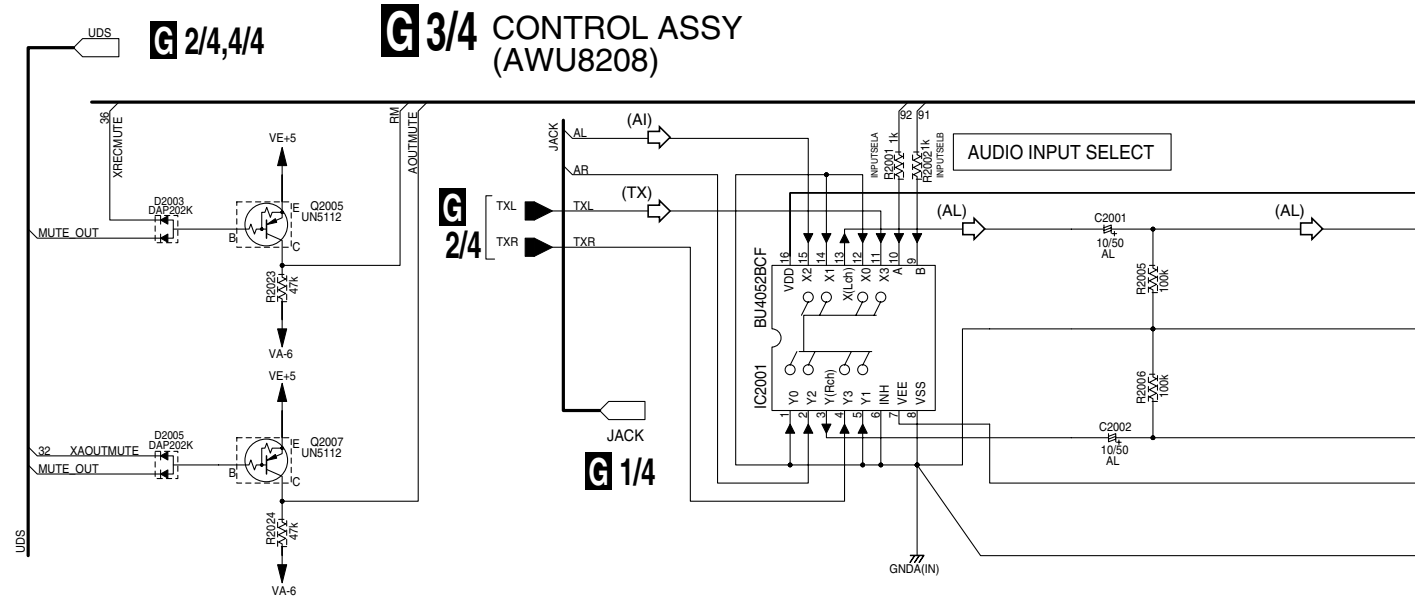

IC801
PEG045A-K
TUNER COM
IC802
RS5C372A-TBB
RTC
IC803
PST3245-TLB
CN805
from DOWN LOAD
52045-0945
BT801
LITHIUM
BATTERY
VEM1033
Lithium
Battery
(T): Video Signal Route (TUNER)
(TV): Audio Signal Route (TV)
(LO): Audio Signal Route (LINE OUT)
(D): Audio Signal Route (DIGITAL)
(AI): Audio Signal Route (AUDIO IN)
(HP): Audio Signal Route (H.P)

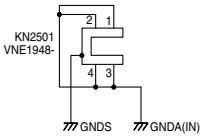
3.12 CONTROL ASSY (2/4)

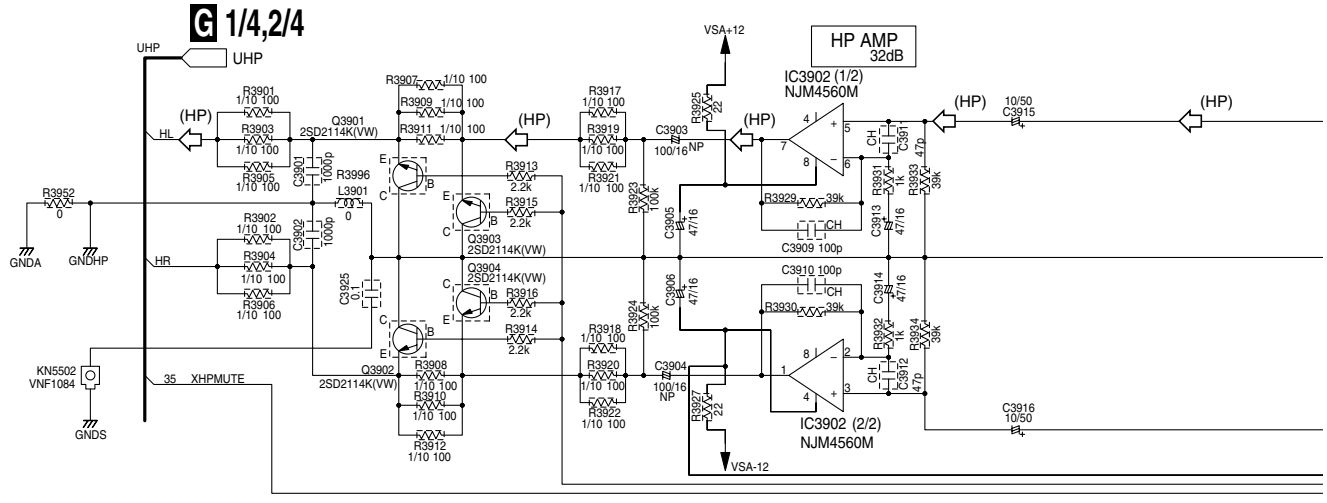



To FM/AM TUNER UNIT
CN5505
52045-1145
GNDX
FMDET
VSM
TXR
VX+9
TXL
GND
DO
CLK
DI
CE
TXIDAT
TXCLK
TXODAT
TXCE
G 3/4
G 2/4 CONTROL ASSY
(AWU8208)
G 1/4
TU-COM
JACK
19R-1.25FJ
CN5503
AGC
SCL
AFT
SDA
TUON
GNDTV
VE+76
VE+37
P_SAVEBS
JUST(P SAVEBS)
NC(LM/)
NC(LDASH)
UVOUT
MUTE
MIONTA
B CN361
CN5504
FOMOI
SD/STID
UV LIN
UV RIN
SU/SAPID
NC(DCTRI)
VT+9
NC(STBYQ)
NC(VS+6)
NC(XRESET)
RDSDATA
RDSCLK
RDSPOW
VD+5
RDS
B CN471
IC6001
BA178M09FP
VSA+12
VS+13
VE+5
GNDX
GNDD
GNDF
PWM
FANPWM
BEATCUT
To DC FAN
MOTOR
OPTIN SELECTOR
IC4601
TC74HC00AF
GP1FA513RZB
JA4601
JA4603
JA4602
GP1FA513TZ
DIGITAL
OPT IN1
OPT IN2
<OUTPUT>
OPTICAL
CN5501
P_CONT
SWVION
PO ON1
FL ON
BEAT CUT
VSA+12
VA+5
VS+6
VT+9
VD+5
VE+33
VE+56
DGRTN
B16B-PH-K-S
I CN152
SR+
IC5901 TC7WH08FU
VES+56
VET+5
REMOUT
RMC
TXD
RXD
SRIN
REMCON
JA5901
XKN3015
SR PLUS
SR IN
NOTES
ALL CAPACITORS ARE IN μ F
UNLESS OTHERWISE SPECIFIED
CH : CCSRCH
(OTHER : CKSRYB)
AL : CEAL
(OTHER : CEAT)
ALL RESISTORS ARE IN Ω
RS1/16S***J
RS1/10S***J
(1/10)
ALL INDUCTORS ARE IN μ H
LFEA***J
(T) : Video Signal Route (TUNER)
(D) : Audio Signal Route (DIGITAL)
(TX) : Audio Signal Route (FM/AM)
(TV) : Audio Signal Route (TV)

3.13 CONTROL ASSY (3/4)







NOTES

ALL CAPACITORS ARE IN μ F
UNLESS OTHERWISE SPECIFIED

CH : CCSRCH
(OTHER : CKSRYB)

AL : CEAL

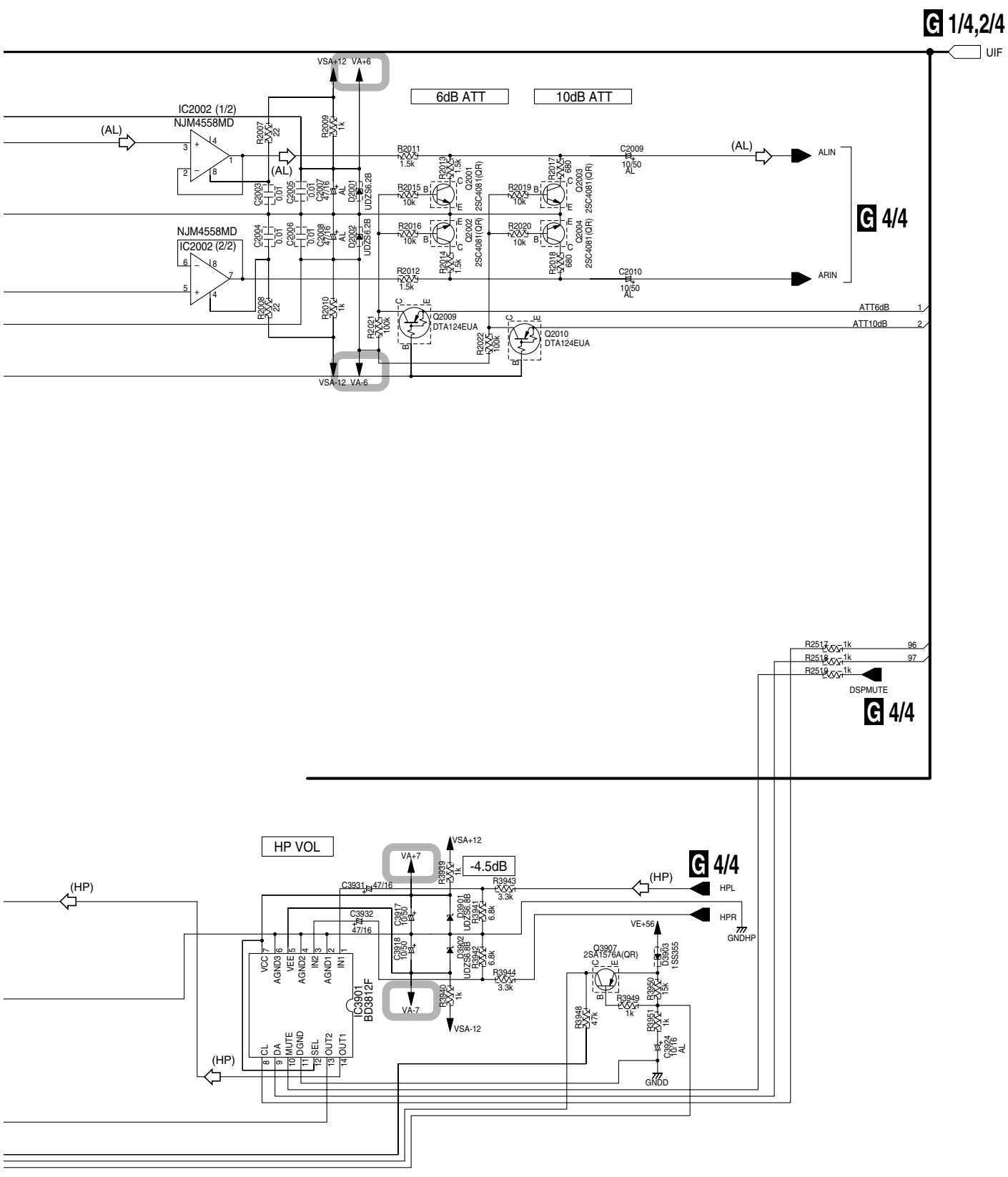
NP : CEANP
(OTHER : CEAT)

ALL RESISTORS ARE IN Ω

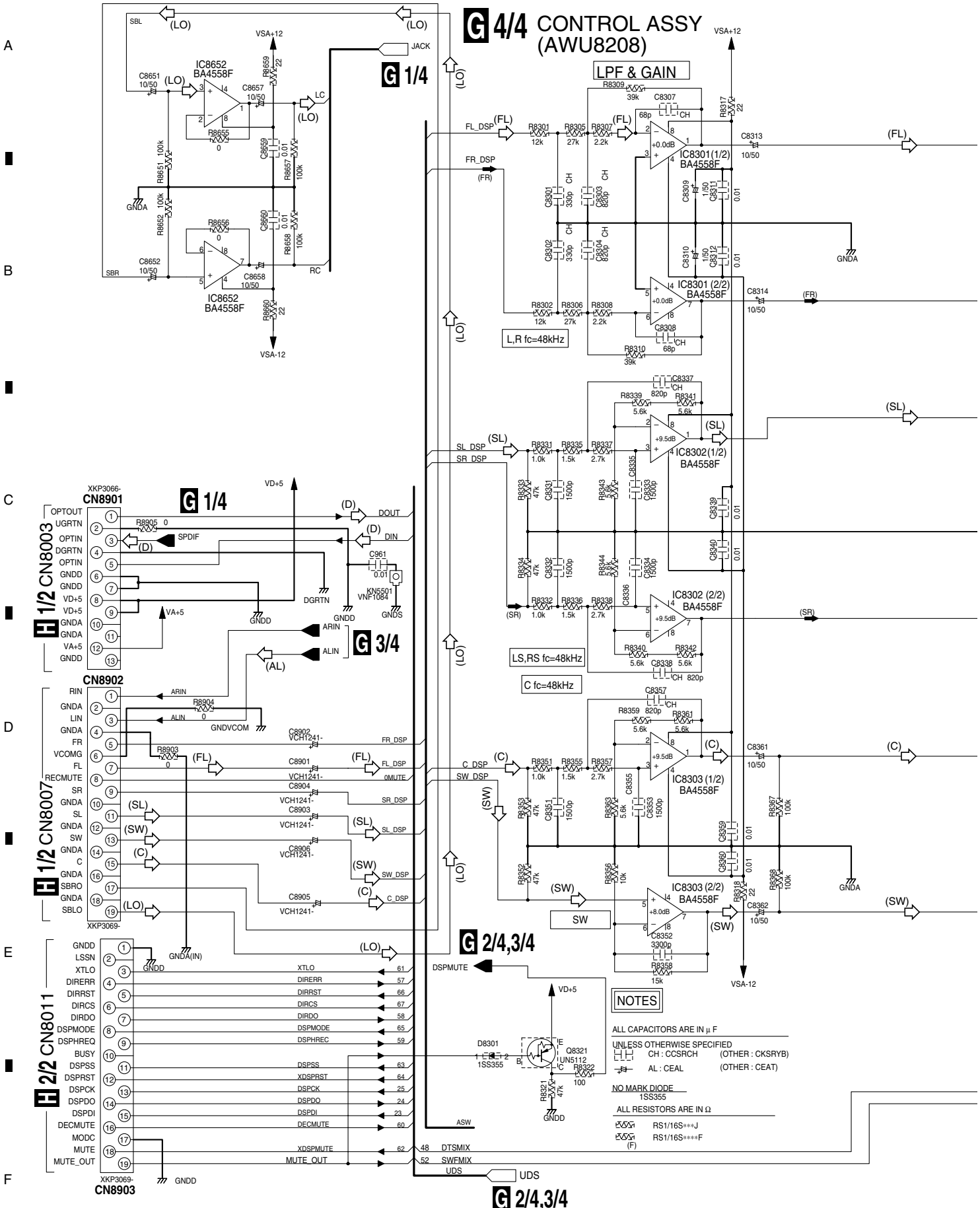
RS1/16S***J

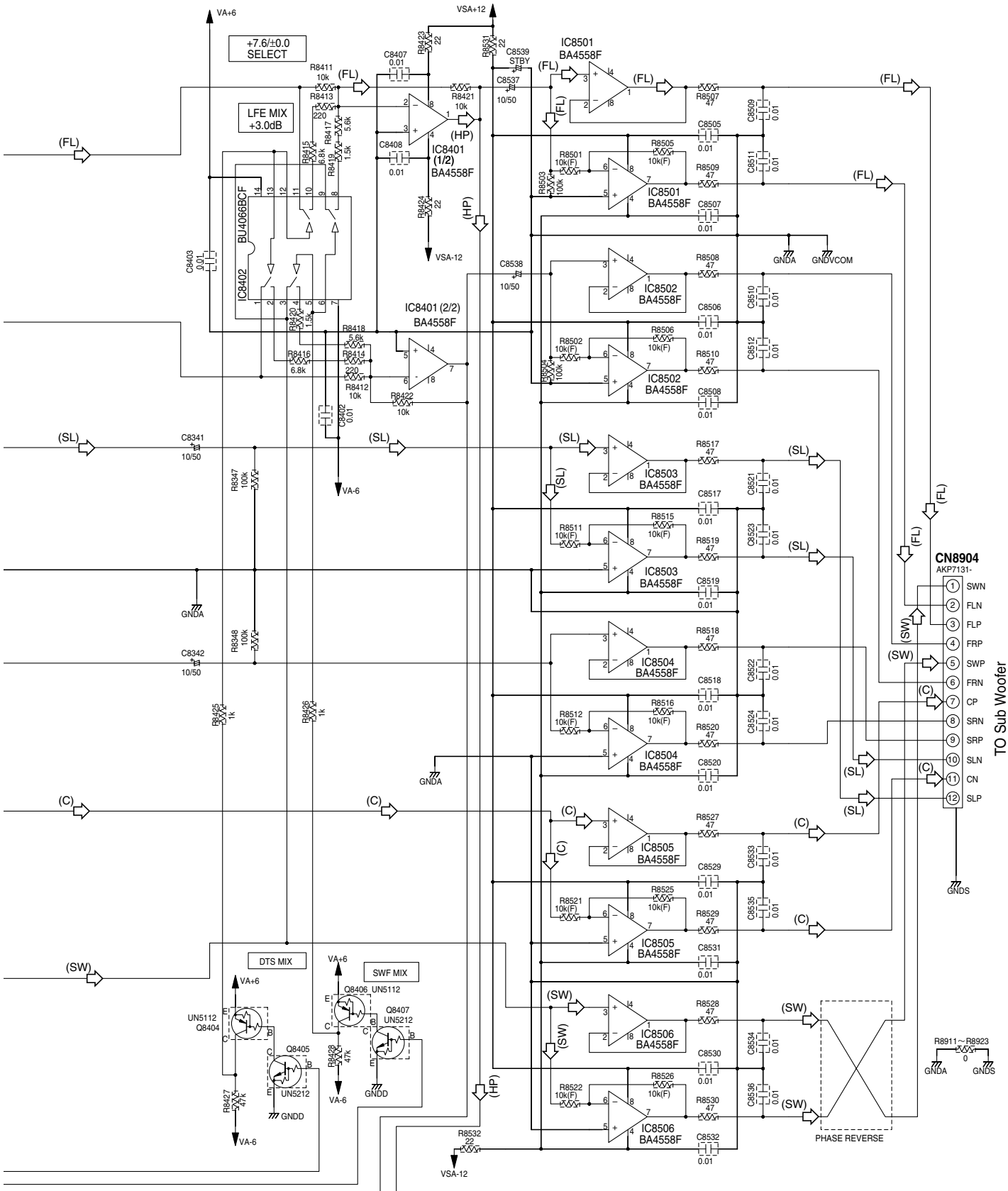
RS1/10S***J
1/10

G 3/4


G 1/4,2/4
UIF
VSA+12 VA+6
6dB ATT
10dB ATT
IC2002 (1/2)
NJM4558MD
(AL)
R2007 22
R2009 1k
R2011 1.5k
R2013 1.5k
Q2001 2SC4081(QR)
R2017 680
Q2003 2SC4081(QR)
C2009 10/50 AL
ALIN
G 4/4
C2003 0.01
C2005 0.01
C2007 47/16 AL
D2001 UDZS6.2B
R2015 10k
R2019 10k
NJM4558MD
IC2002 (2/2)
C2004 0.01
C2006 0.01
C2008 47/16 AL
D2002 UDZS6.2B
R2016 10k
R2020 10k
R2014 1.5k
Q2002 2SC4081(QR)
R2018 680
Q2004 2SC4081(QR)
R2012 1.5k
C2010 10/50 AL
ARIN
R2008 22
R2010 1k
R2021 100k
Q2009 DTA124EUA
R2022 100k
Q2010 DTA124EUA
ATT6dB 1
ATT10dB 2
VSA-12 VA-6
R2517 1k 96
R2518 1k 97
R2519 1k
DSPMUTE
G 4/4
HP VOL
VSA+12
VA+7
-4.5dB
G 4/4
(HP)
R3939 1k
C3931 47/16
R3943 3.3k
HPL
C3932 47/16
C3917 10/50
D3901 UDZS6.8B
R3941 2.2k 6.8k
HPR
VE+56
GNDHP
C3918 10/50
D3902 UDZS6.8B
R3942 2.2k 6.8k
Q3907 2SA1576A(QR)
D3903 1SS355
R3944 3.3k
R3940 2.2k 1k
VA-7
VSA-12
IC3901 BD3812F
VCC AGND3 VEE AGND2 IN2 AGND1 IN1
CL DA MUTE DGND SEL OUT2 OUT1
R3949 1k
R3950 15k
R3948 47k
R3951 2.2k 1k
C3924 10/16 AL
GNDD
(AL): Audio Signal Route (AUDIO L ch)
(TX): Audio Signal Route (FM/AM)
(AI): Audio Signal Route (AUDIO IN)
(HP): Audio Signal Route (H.P)
G 3/4

3.14 CONTROL ASSY (4/4)



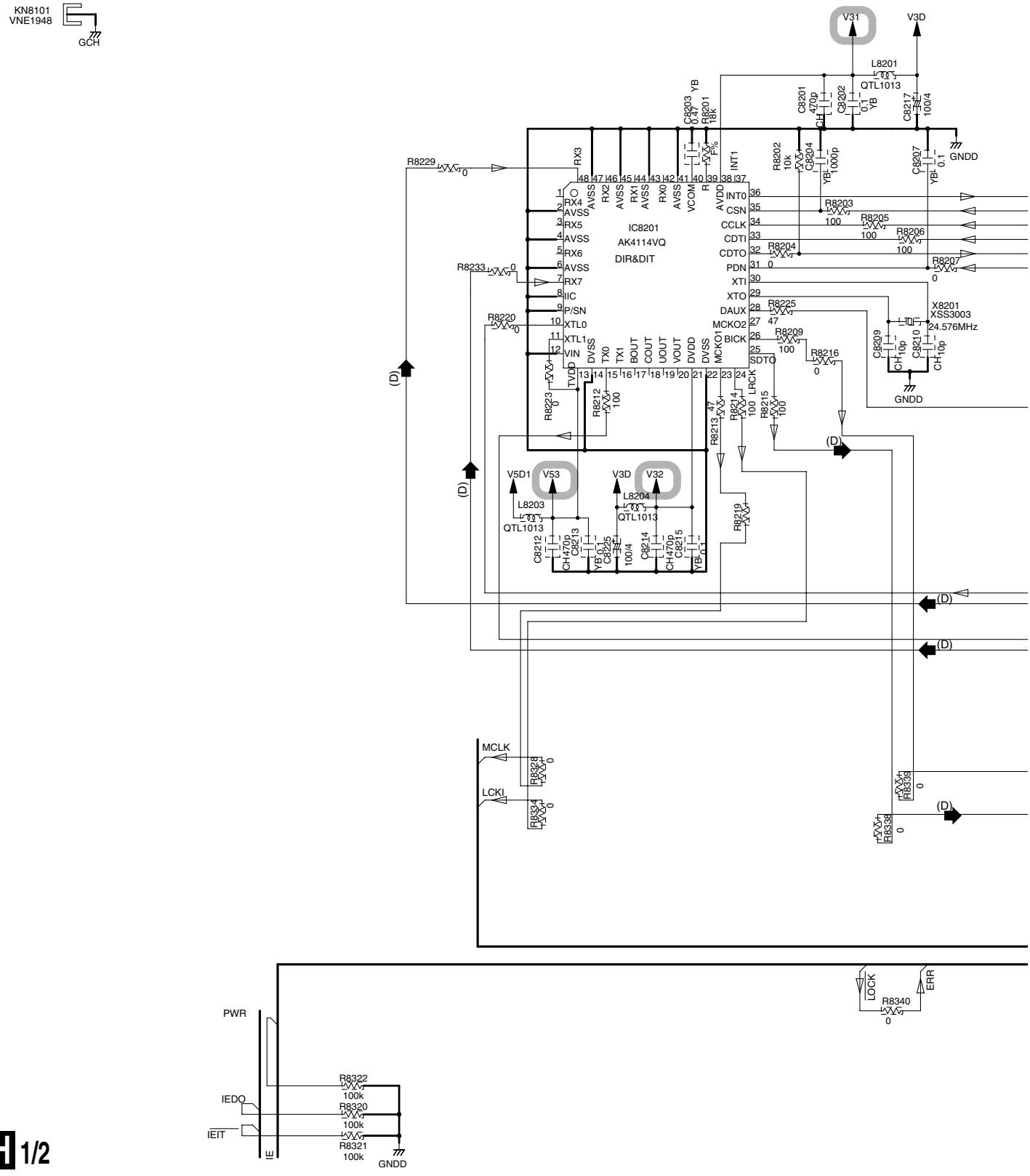


(AL) ⇨: Audio Signal Route (AUDIO L ch)
(HP) ⇨: Audio Signal Route (H.P)
(D) ⇨: Audio Signal Route (DIGITAL)
(FL) ⇨: Audio Signal Route (FL ch)
(SL) ⇨: Audio Signal Route (SL ch)
(C) ⇨: Audio Signal Route (C ch)
(SW) ⇨: Audio Signal Route (SW ch)
(LO) ⇨: Audio Signal Route (LINE OUT)

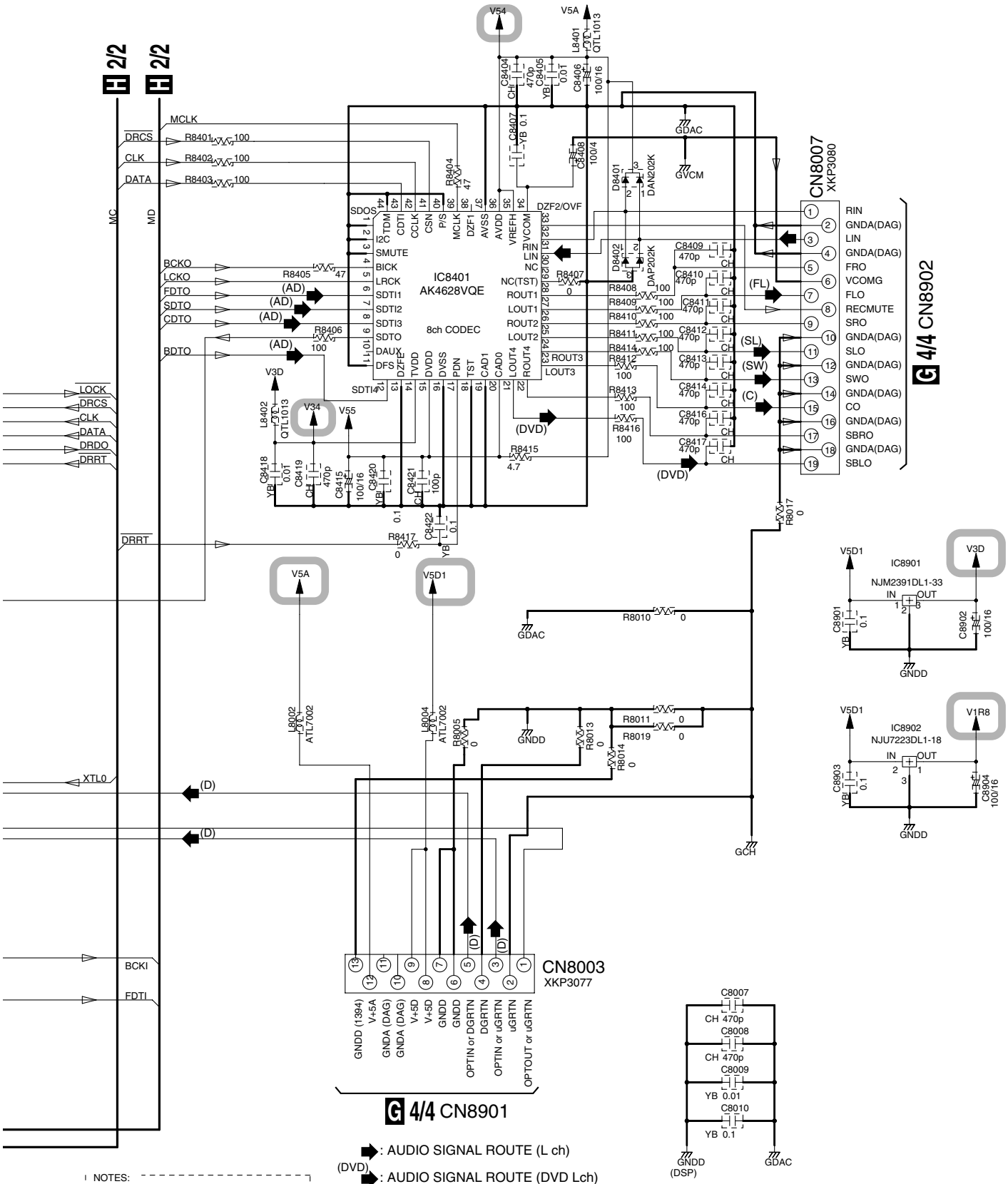
G 4/4

3.15 DSP ASSY (1/2)

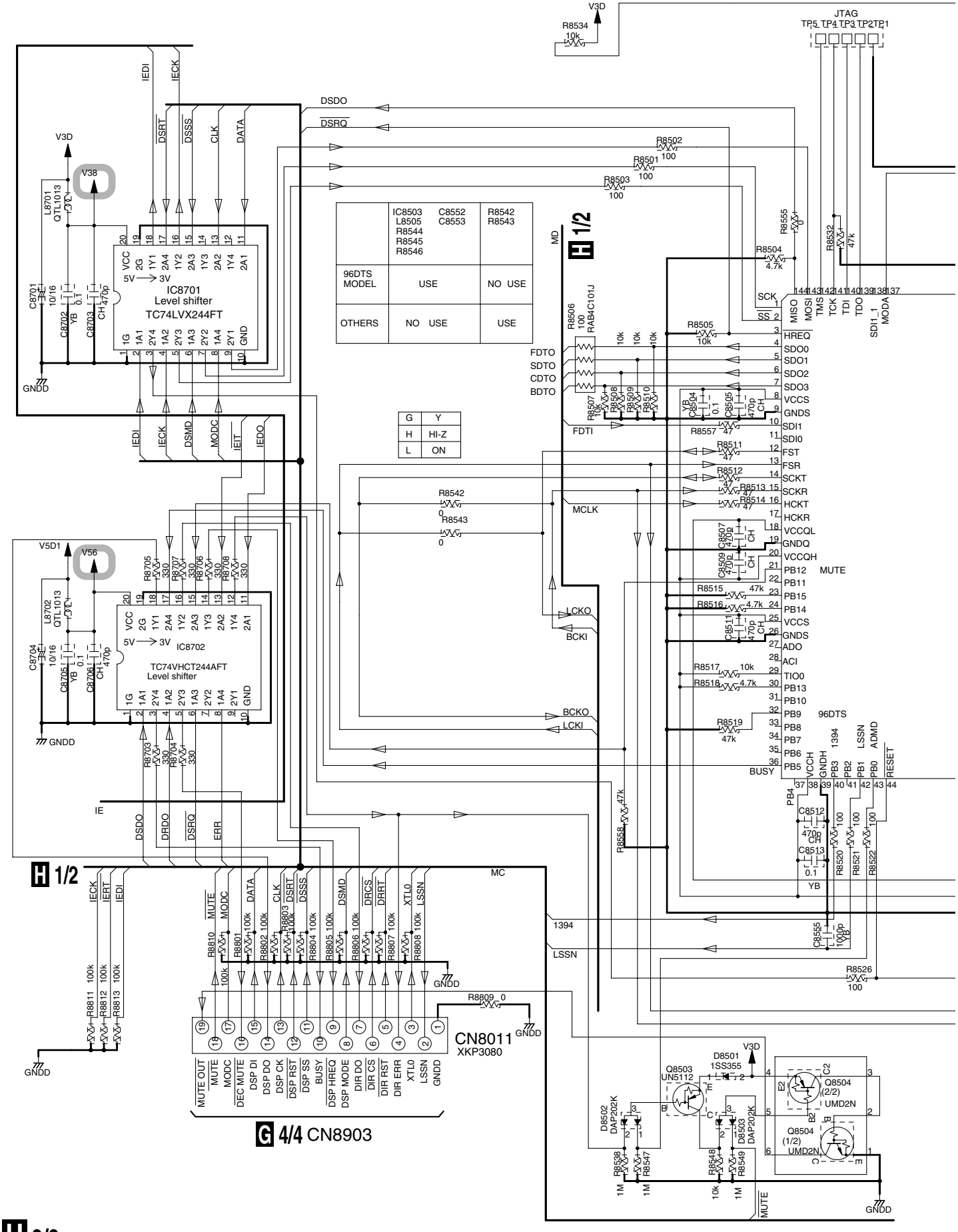
H 1/2 DSP ASSY
(AWX8486)



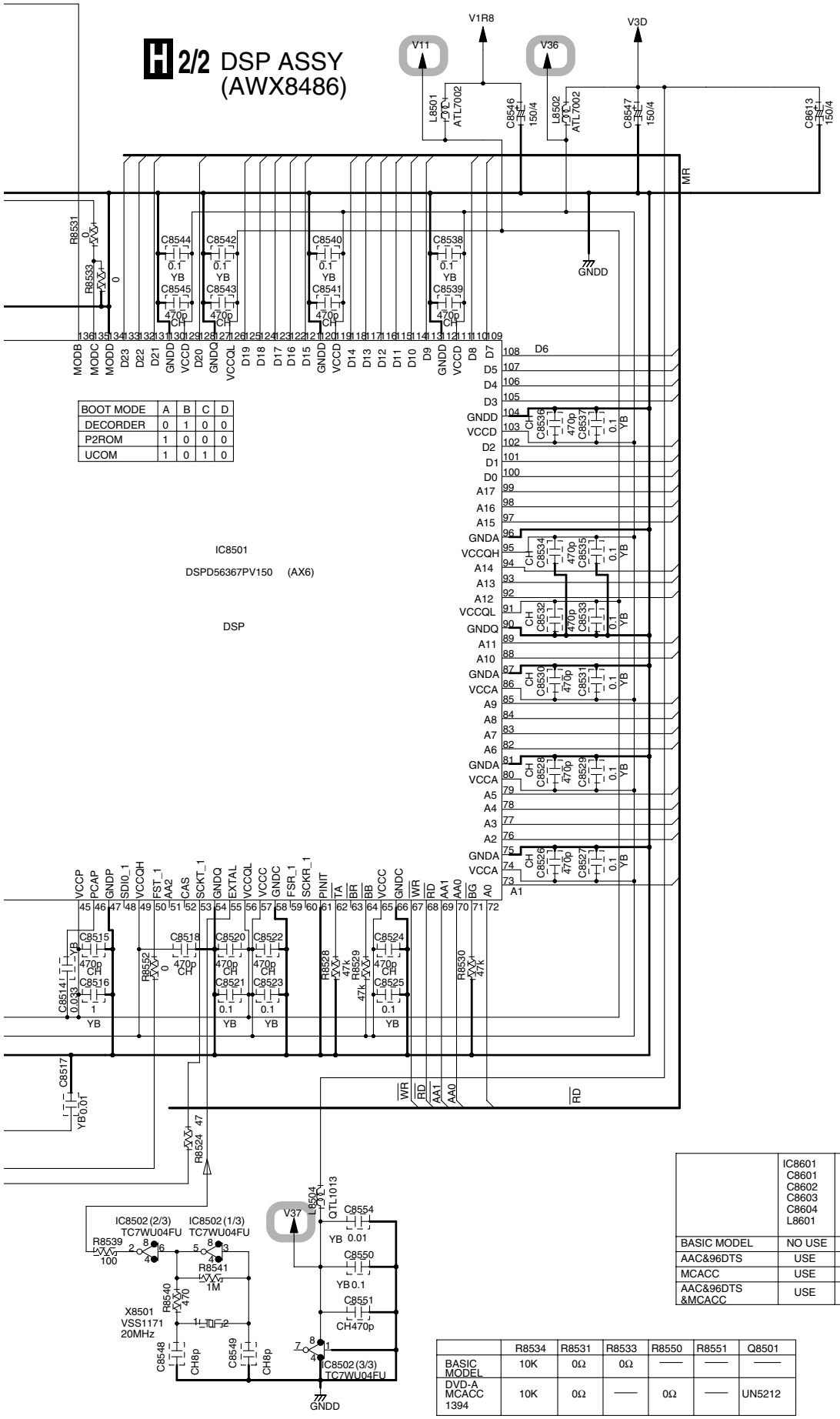
H 1/2


H 2/2
H 2/2
MCLK
DRCS
CLK
DATA
R8401 100
R8402 100
R8403 100
IC8401
AK4628VQE
8ch CODEC
SDOS
I2C
SMUTE
BICK
LRCK
SDTI1
SDTI2
SDTI3
SDTO
DAUX
DFS
TDM
CDTI
CCLK
CSN
P/S
MCLK
DZF1
AVSS
AVDD
VREFH
VCOM
DZF2/OVF
RIN
LIN
NC
NC(TST)
ROUT1
LOUT1
ROUT2
LOUT2
ROUT3
LOUT3
TVDD
DVDD
DVSS
PDN
TST
CAD1
CAD0
LOUT4
ROUT4
DZFE
SDTI4
BCKO
LCKO
FDTO
SDTO
CDTO
BDTO
R8405 47
R8406 100
R8407 0
R8404 47
(AD)
V54
V5A
V3D
V34
V55
V5D1
L8401 QTL1013
L8402 QTL1013
C8404 CH 470p
C8405 YB 0.01
C8406 YB 100/16
C8407 YB 0.1
C8408 YB 100/4
C8418 YB 0.01
C8419 CH 470p
C8415 YB 100/16
C8420 YB 0.1
C8421 CH 100p
C8422 YB 0.1
R8417 0
R8415 4.7
GDAC
GVCM
D8401 DAN202K
D8402 DAP202K
R8408 100
R8409 100
R8410 100
R8411 100
R8414 100
R8412 100
R8413 100
R8416 100
C8409 470p CH
C8410 470p CH
C8411 470p CH
C8412 470p CH
C8413 470p CH
C8414 470p CH
C8416 470p CH
C8417 470p CH
(DVD)
(FL)
(SL)
(SW)
(C)
CN8007
XKP3080
RIN
GNDA(DAG)
LIN
GNDA(DAG)
FRO
VCOMG
FLO
RECMUTE
SRO
GNDA(DAG)
SLO
GNDA(DAG)
SWO
GNDA(DAG)
CO
GNDA(DAG)
SBRO
GNDA(DAG)
SBLO
G 4/4 CN8902
LOCK
DRCS
CLK
DATA
DRDO
DRRT
R8017 0
R8010 0
GCH
IC8901
NJM2391DL1-33
IN
OUT
C8901 YB 0.1
C8902 YB 100/16
GNDD
IC8902
NJU7223DL1-18
C8903 YB 0.1
C8904 YB 100/16
V1R8
L8002 QTL7002
L8004 QTL7002
R8005 0
R8011 0
R8019 0
R8013 0
R8014 0
XTL0
(D)
BCKI
FDTI
CN8003
XKP3077
GNDD (1394)
V+5A
GNDA (DAG)
GNDA (DAG)
V+5D
V+5D
GNDD
GNDD
OPTIN or DGRTN
DGRTN
OPTIN or uGRTN
uGRTN
OPTOUT or uGRTN
G 4/4 CN8901
C8007 CH 470p
C8008 CH 470p
C8009 YB 0.01
C8010 YB 0.1
GNDD (DSP)
GDAC
NOTES:
NO INDICATED PARTS IS...
CCSRCH****50-T
CKSRYB****50-T
CKSRYB333K16-T
CKSRYB104K16-T
CKSRYB105K6R3-T
CEV***M**-T
RS1/16S***J-T
UNLESS OTHERWISE NOTED
: AUDIO SIGNAL ROUTE (L ch)
: AUDIO SIGNAL ROUTE (DVD Lch)
: AUDIO SIGNAL ROUTE (DIGITAL)
: AUDIO DATA SIGNAL ROUTE
: AUDIO SIGNAL ROUTE (Front L ch)
: AUDIO SIGNAL ROUTE (Surround L ch)
: AUDIO SIGNAL ROUTE (Center ch)
: AUDIO SIGNAL ROUTE (Sub Woofer ch)
H 1/2

3.16 DSP ASSY (2/2)



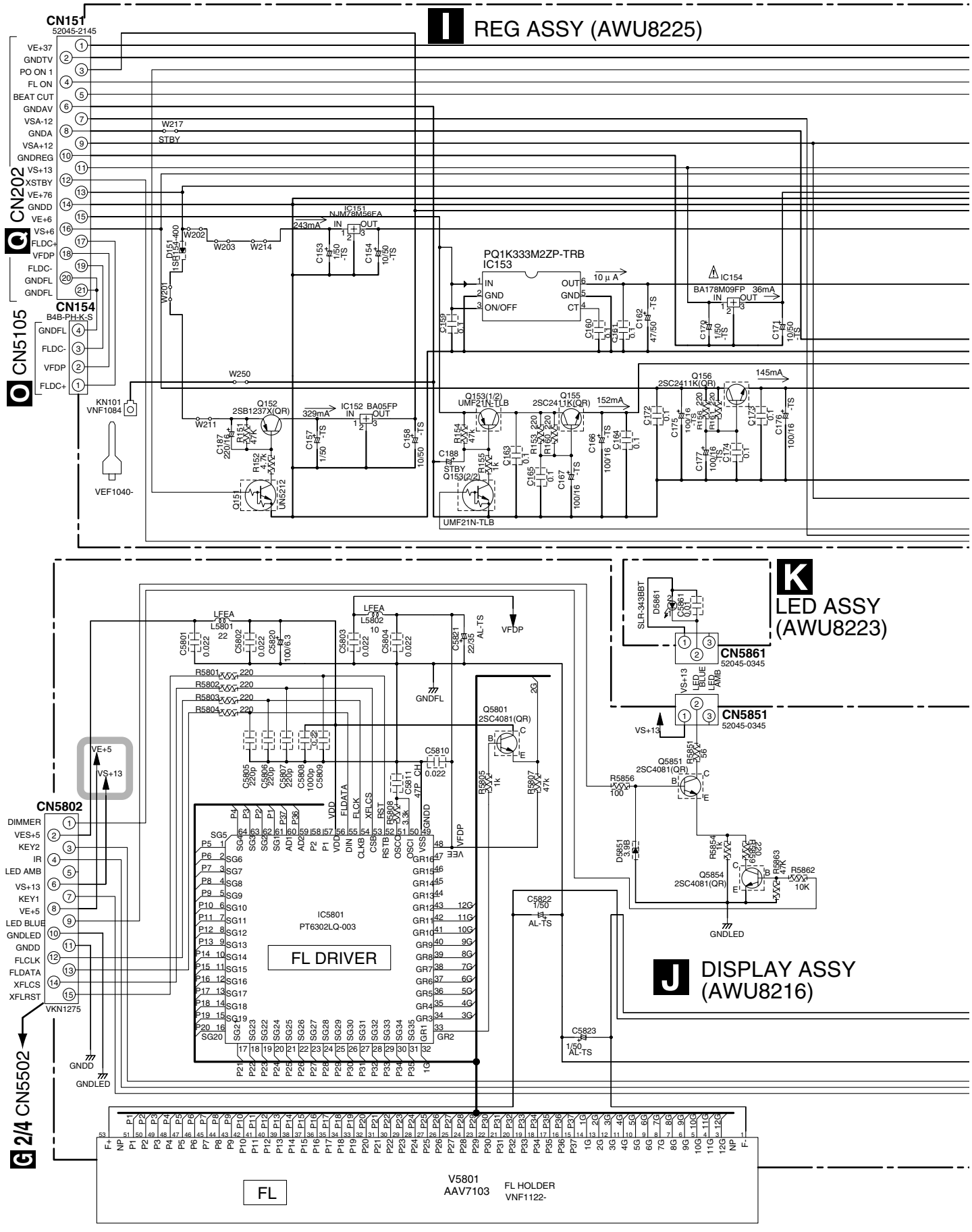
H 2/2 DSP ASSY (AWX8486)

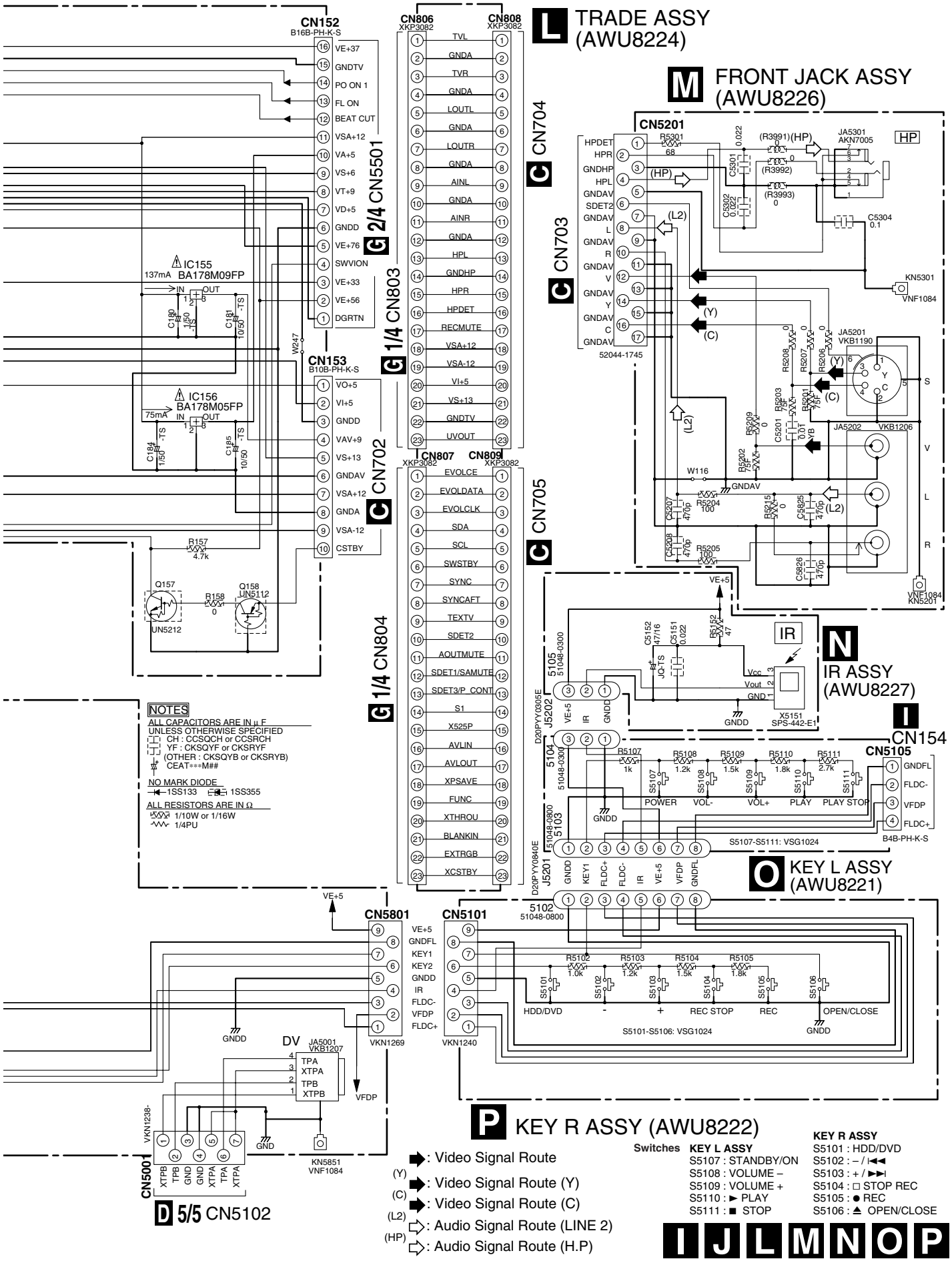


	IC8601 C8601 C8602 C8603 C8604 L8601	IC8602 C8605 C8606 C8607 C8608 L8602	IC8603 C8609 C8610 L8603	R8523
BASIC MODEL	NO USE	NO USE	NO USE	NO USE
AAC&96DTS	USE	USE	NO USE	USE
MCACC	USE	NO USE	USE	USE
AAC&96DTS &MCACC	USE	USE	USE	USE

	R8534	R8531	R8533	R8550	R8551	Q8501
BASIC MODEL	10K	0Ω	0Ω	——	——	——
DVD-A MCACC 1394	10K	0Ω	——	0Ω	——	UN5212

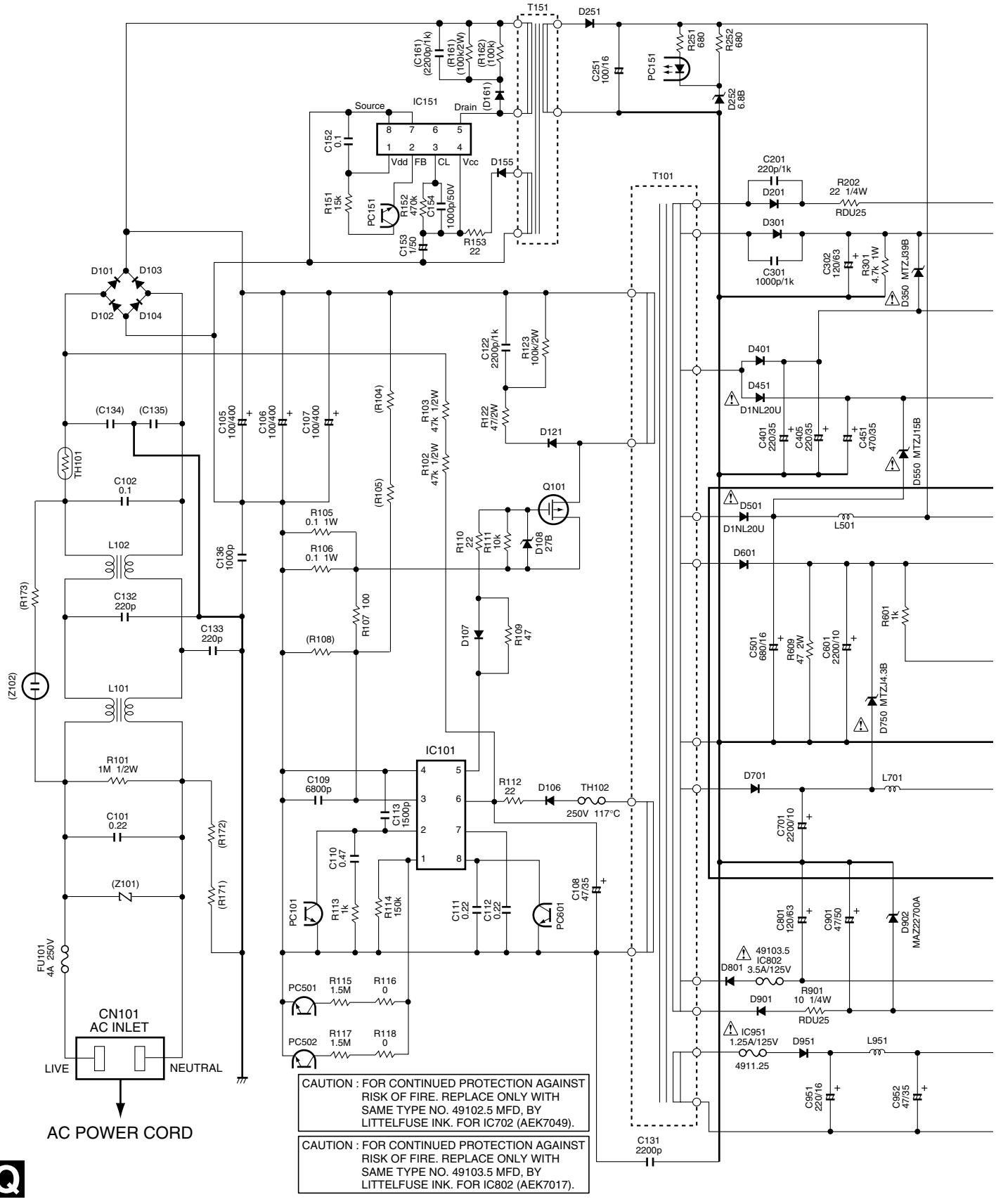
3.17 REG, DISPLAY, LED,TRADE, F. JACK, IR, KEY L and KEY R ASSYS




L TRADE ASSY (AWU8224)
M FRONT JACK ASSY (AWU8226)
N IR ASSY (AWU8227)
O KEY L ASSY (AWU8221)
P KEY R ASSY (AWU8222)
CN152
CN153
CN806
CN807
CN808
CN809
CN5201
CN5801
CN5101
CN5001
CN5105
CN154
G 2/4 CN5501
G 1/4 CN803
G 1/4 CN804
C CN702
C CN703
C CN704
C CN705
D 5/5 CN5102
IC155 BA178M09FP
IC156 BA178M05FP
Q157 UN5212
Q158 UN5112
JA5301 AKN7005
JA5201 VKB1190
JA5202 VKB1206
JA5001 VKB1207
VKN1269
VKN1240
VKN1238-
KN5301 VNF1084
KN5851 VNF1084
KN5201 VNF1084
52044-1745
X5151 SPS-442-E1
B4B-PH-K-S
S5107-S5111: VSG1024
S5101-S5106: VSG1024
HDD/DVD
REC STOP
REC
OPEN/CLOSE
POWER
VOL-
VOL+
PLAY
PLAY STOP
NOTES
ALL CAPACITORS ARE IN μ F
UNLESS OTHERWISE SPECIFIED
CH : CCSQCH or CCSRCH
YF : CKSQYF or CKSRYF
(OTHER : CKSQYB or CKSRYB)
CEAT***M##
NO MARK DIODE
1SS133 1SS355
ALL RESISTORS ARE IN Ω
1/10W or 1/16W
1/4PU
: Video Signal Route
(Y) : Video Signal Route (Y)
(C) : Video Signal Route (C)
(L2) : Audio Signal Route (LINE 2)
(HP) : Audio Signal Route (H.P)
Switches
KEY L ASSY
S5107 : STANDBY/ON
S5108 : VOLUME –
S5109 : VOLUME +
S5110 : ► PLAY
S5111 : ■ STOP
KEY R ASSY
S5101 : HDD/DVD
S5102 : – / ⏮
S5103 : + / ⏭
S5104 : □ STOP REC
S5105 : ● REC
S5106 : ▲ OPEN/CLOSE
I J L M N O P

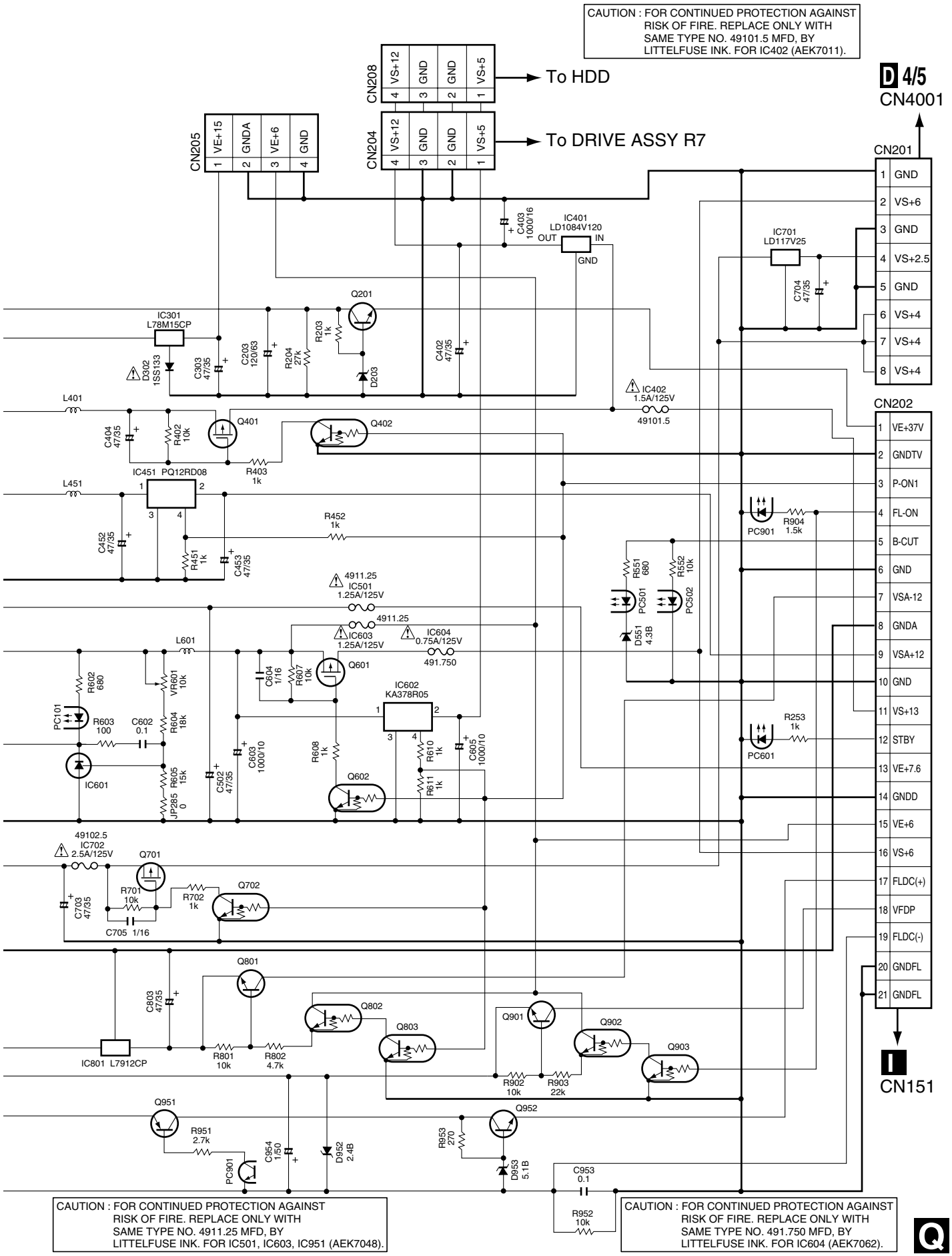
3.18 POWER SUPPLY UNIT

Q POWER SUPPLY UNIT (AWR7013)



CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 49102.5 MFD, BY LITTELFUSE INK. FOR IC702 (AEK7049).

CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 49103.5 MFD, BY LITTELFUSE INK. FOR IC802 (AEK7017).

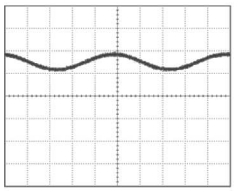

CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 49101.5 MFD, BY LITTELFUSE INK. FOR IC402 (AEK7011).
CN208
VS+12
GND
GND
VS+5
To HDD
CN204
To DRIVE ASSY R7
CN205
VE+15
GNDA
VE+6
GND
D 4/5
CN4001
CN201
GND
VS+6
GND
VS+2.5
GND
VS+4
VS+4
VS+4
CN202
VE+37V
GNDTV
P-ON1
FL-ON
B-CUT
GND
VSA-12
GNDA
VSA+12
GND
VS+13
STBY
VE+7.6
GNDD
VE+6
VS+6
FLDC(+)
VFDP
FLDC(-)
GNDFL
GNDFL
I
CN151
IC401 LD1084V120
IC701 LD117V25
IC301 L78M15CP
IC402 1.5A/125V
49101.5
IC451 PQ12RD08
4911.25 IC501 1.25A/125V
4911.25 IC603 1.25A/125V
IC604 0.75A/125V
491.750
IC602 KA378R05
49102.5 IC702 2.5A/125V
IC801 L7912CP
Q201
Q401
Q402
Q601
Q602
Q701
Q702
Q801
Q802
Q803
Q901
Q902
Q903
Q951
Q952
PC901
PC501
PC502
PC601
IC601
D302 1SS133
D203
D551 4.3B
D952 2.4B
D953 5.1B
L401
L451
L601
C403 1000/16
C704 47/35
C303 47/35
C203 120/63
C204 27k
R203 1k
C402 47/35
C404 47/35
R402 10k
R403 1k
C452 47/35
R451 1k
C453 47/35
R452 1k
R551 680
R552 10k
R904 1.5k
R253 1k
R602 680
VR601 10k
R603 100
C602 0.1
R604 18k
R605 15k
JP285 0
C502 47/35
C603 1000/10
R607 10k
C604 1/16
R608 1k
R610 1k
R611 1k
C605 1000/10
C703 47/35
R701 10k
C705 1/16
R702 1k
C803 47/35
R801 10k
R802 4.7k
R902 10k
R903 22k
R951 2.7k
C954 1/50
R953 270
C953 0.1
R952 10k
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 4911.25 MFD, BY LITTELFUSE INK. FOR IC501, IC603, IC951 (AEK7048).
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491.750 MFD, BY LITTELFUSE INK. FOR IC604 (AEK7062).
Q

3.19 WAVEFORMS

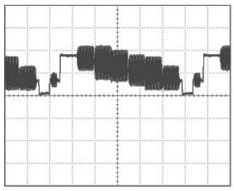
Note : The encircled numbers denote measuring point in the schematic diagram.

C JACK ASSY

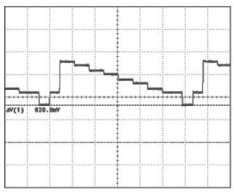
1 IC601-pin 11 (L4)
(Function : Tuner 2 ch)
V: 1V/div. H: 200µsec/div.



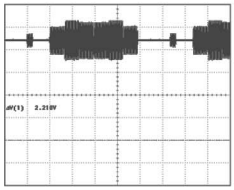
2 CN704-pin 23 (UVOUT)
(Function : Tuner 2 ch)
V: 500mV/div. H: 10µsec/div.



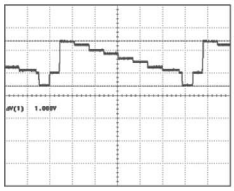
3 IC701-pin 27 (YSWO)
(Function : Line 1 Video in)
V: 500mV/div. H: 10µsec/div.



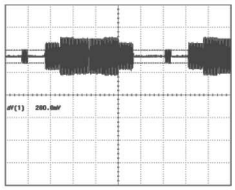
4 IC701-pin 25 (CSWO)
(Function : Line 1 Video in)
V: 500mV/div. H: 10µsec/div.



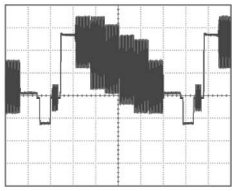
5 CN701-pin 4 (YVMtoT)
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.



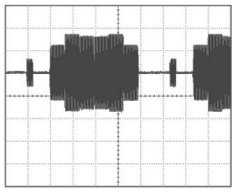
6 CN701-pin 6 (CMtoT)
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.



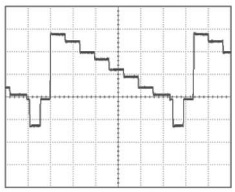
7 IC701-pin 68 (VOUT)
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.



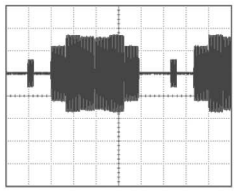
8 IC701-pin 65 (COUT)
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.



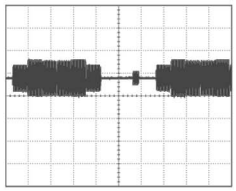
9 IC701-pin 63 (YOUT)
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.



10 JA702-pin 4 (COUT)
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.

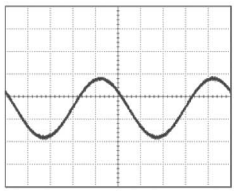


(Not terminated)

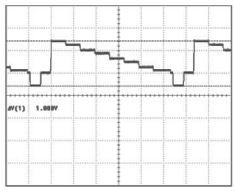


(75Ω terminated)

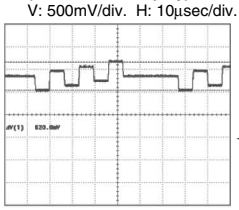
11 CN701-pin 28 (ALTtoM)
(Function : LINE1 Video, Audio IN)
V: 1V/div. H: 200µsec/div.



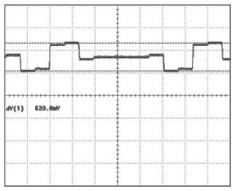
12 CN701-pin 8 (YGMtoT)
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.



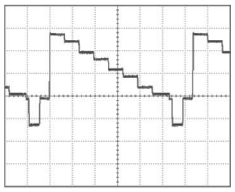
13 CN701-pin 10 (CBBMtoT)
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.



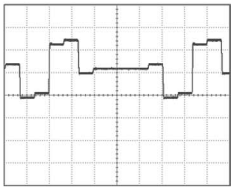
14 CN701-pin 12 (CRRMtoT)
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.



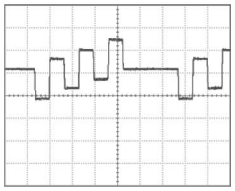
15 IC701-pin 60 (PYRSCOUT)
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.



16 IC701-pin 58 (CRGOUT)
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.



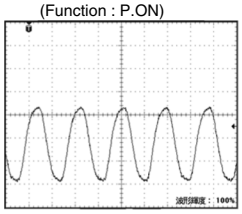
17 IC701-pin 56 (CBBOUT)
(Function : DVD play)
V: 500mV/div. H: 10µsec/div.



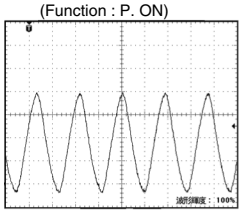
D MAIN ASSY

Measurement condition ;
No.3 to No.8, No.10 to No.13 : 75% Color-bar, A1 disc 2-20
No.15 ,No.16 : 75% Color-bar
No.9, No.14 : 1kHz, 2Vrms, A1 disc 2-1
No.17 : 1kHz, 2Vrms

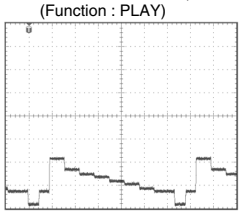
1 X4102 - pin 4 (ADMCLKI)
V: 1V/div. H: 20nsec/div.
(Function : P.ON)



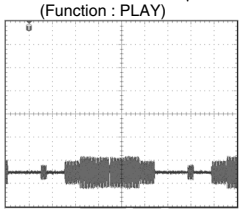
2 R4205 (VMCLK)
V: 1V/div. H: 20nsec/div.
(Function : P. ON)



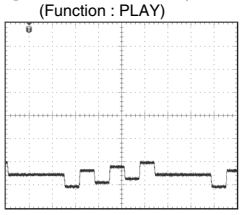
3 Q2103 - B (Y)
V: 500mV/div. H: 10µsec/div.
(Function : PLAY)



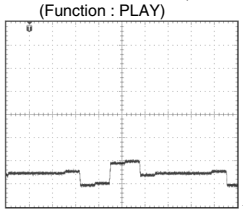
4 Q2102 - B (C)
V: 500mV/div. H: 10µsec/div.
(Function : PLAY)



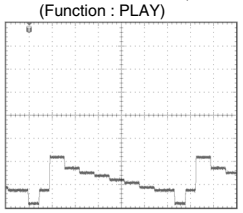
5 Q2104 - B (Cb)
V: 500mV/div. H: 10µsec/div.
(Function : PLAY)



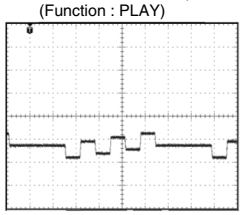
6 Q2105 - B (Cr)
V: 500mV/div. H: 10µsec/div.
(Function : PLAY)



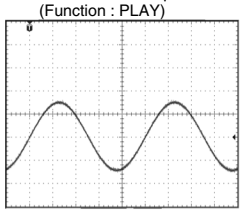
7 Q2101 - B (Y)
V: 500mV/div. H: 10µsec/div.
(Function : PLAY)



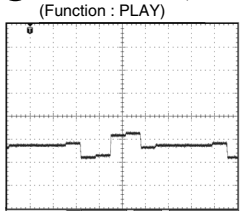
8 CN2001-pin 23 (Cb Out)
V: 500mV/div. H: 10µsec/div.
(Function : PLAY)



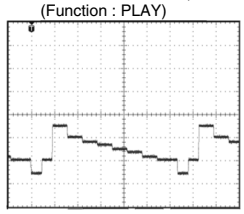
9 CN2001-pin 17 (Lch Out)
V: 2V/div. H: 200µsec/div.
(Function : PLAY)



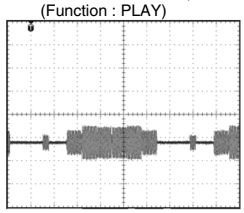
10 CN2001-pin 21 (Cr Out)
V: 500mV/div. H: 10µsec/div.
(Function : PLAY)



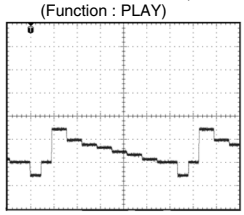
11 CN2001-pin 29 (Y Out)
V: 500mV/div. H: 10µsec/div.
(Function : PLAY)



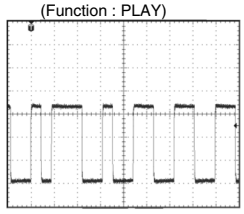
12 CN2001-pin 27 (C Out)
V: 500mV/div. H: 10µsec/div.
(Function : PLAY)



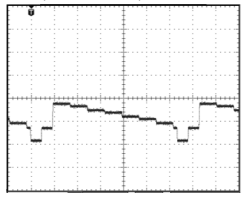
13 CN2001-pin 25 (Y Out)
V: 500mV/div. H: 10µsec/div.
(Function : PLAY)



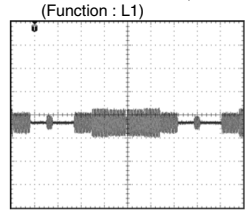
14 CN3001-pin 13 (PCMAIN)
V: 1V/div. H: 400nsec/div.
(Function : PLAY)



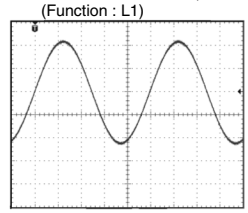
15 CN2001-pin 9 (SEL Y/V)
V: 500mV/div. H: 10µsec/div.
(Function : L1)



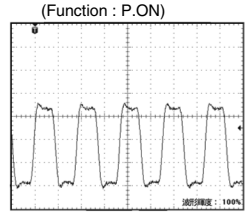
16 CN2001-pin 7 (SEL C)
V: 500mV/div. H: 10µsec/div.
(Function : L1)



17 CN2001-pin 5 (SEL L)
V: 500mV/div. H: 200µsec/div.
(Function : L1)



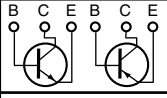
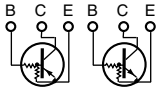
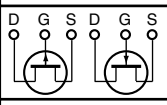
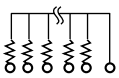
18 IC3402-pin 7 (27MCLK)
V: 1V/div. H: 20nsec/div.
(Function : P.ON)



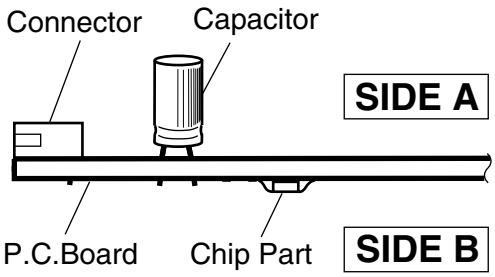
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

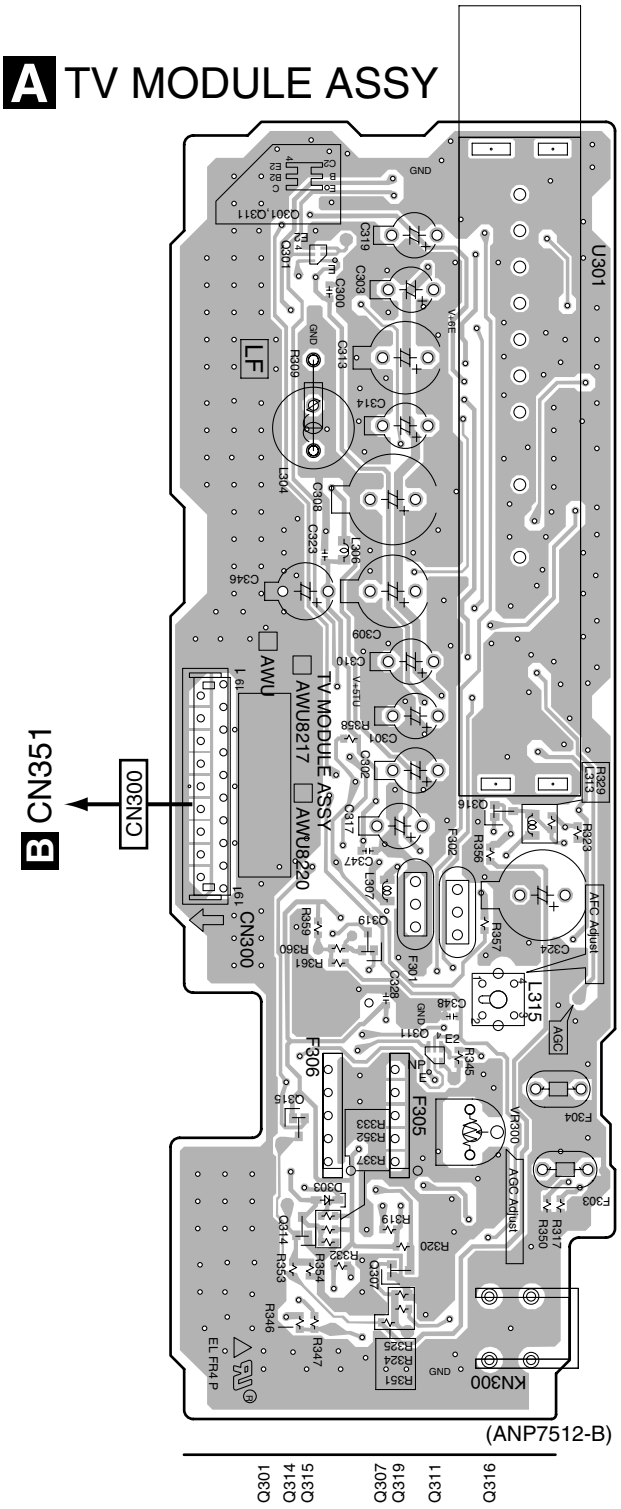
3. The parts mounted on this PCB include all necessary parts for several destinations.
   For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.

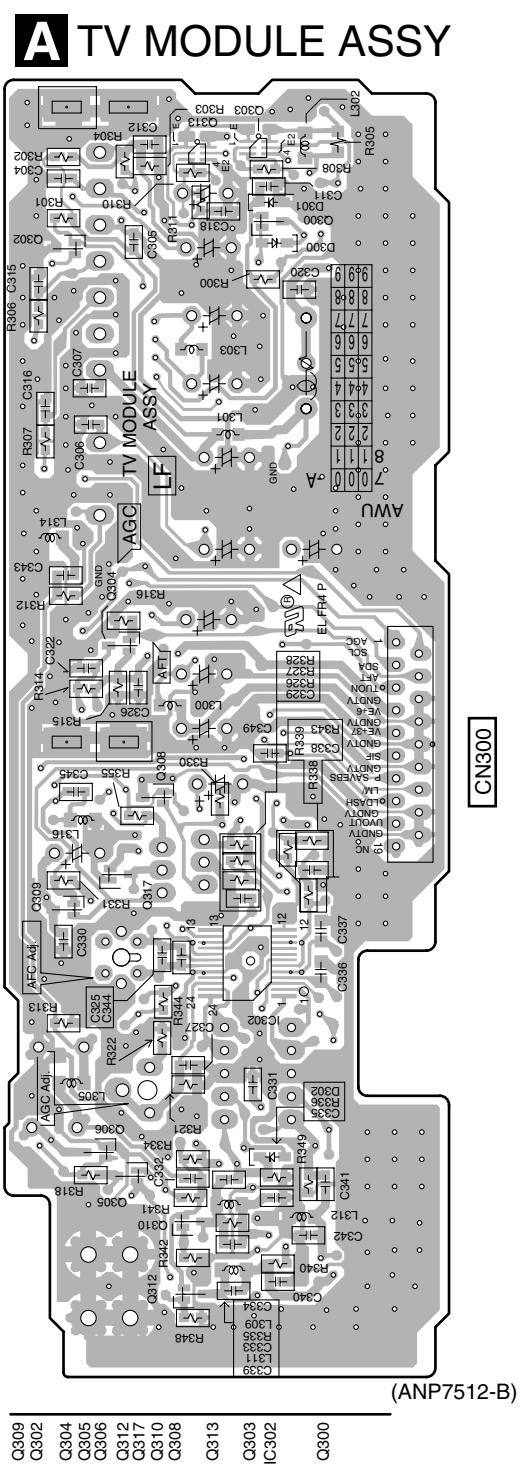


4.1 TV MODULE ASSY

SIDE A

SIDE B

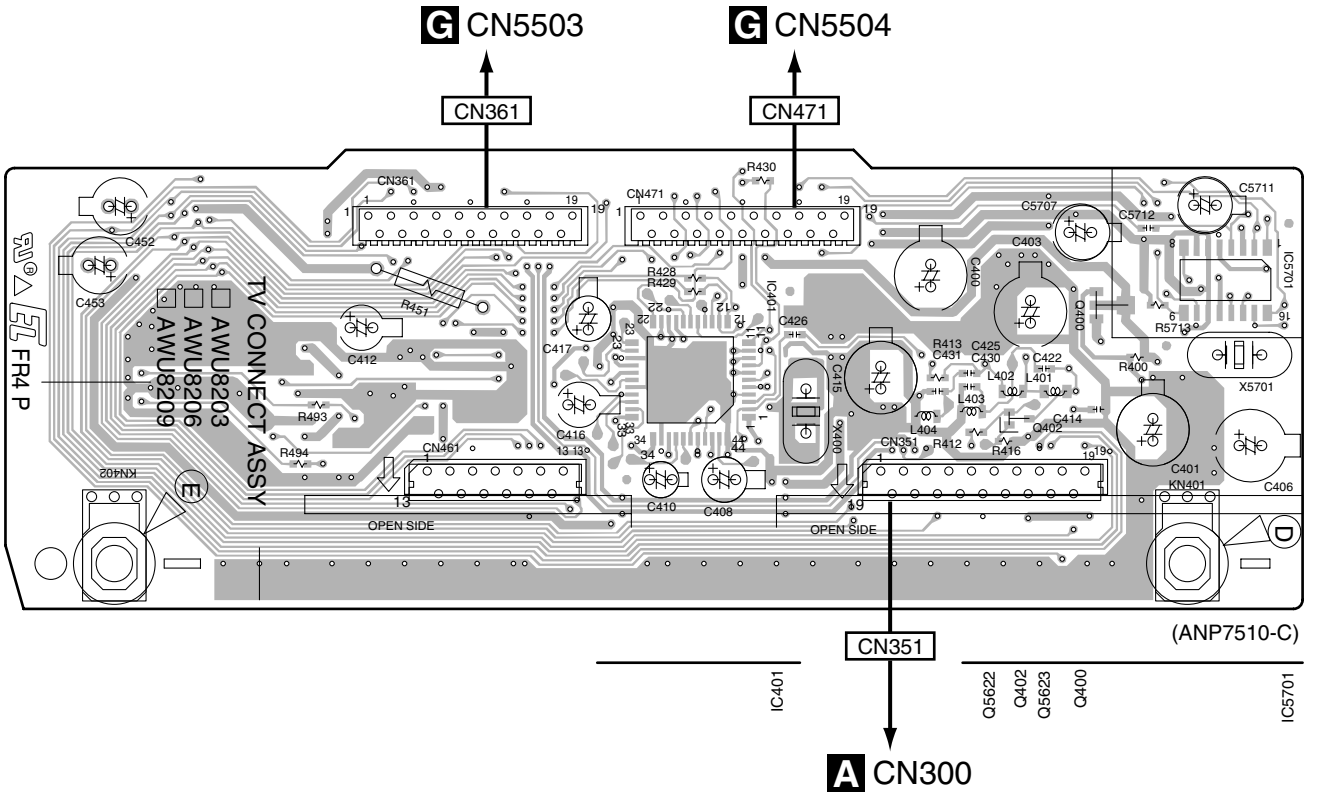




4.2 TV CONNECT ASSY

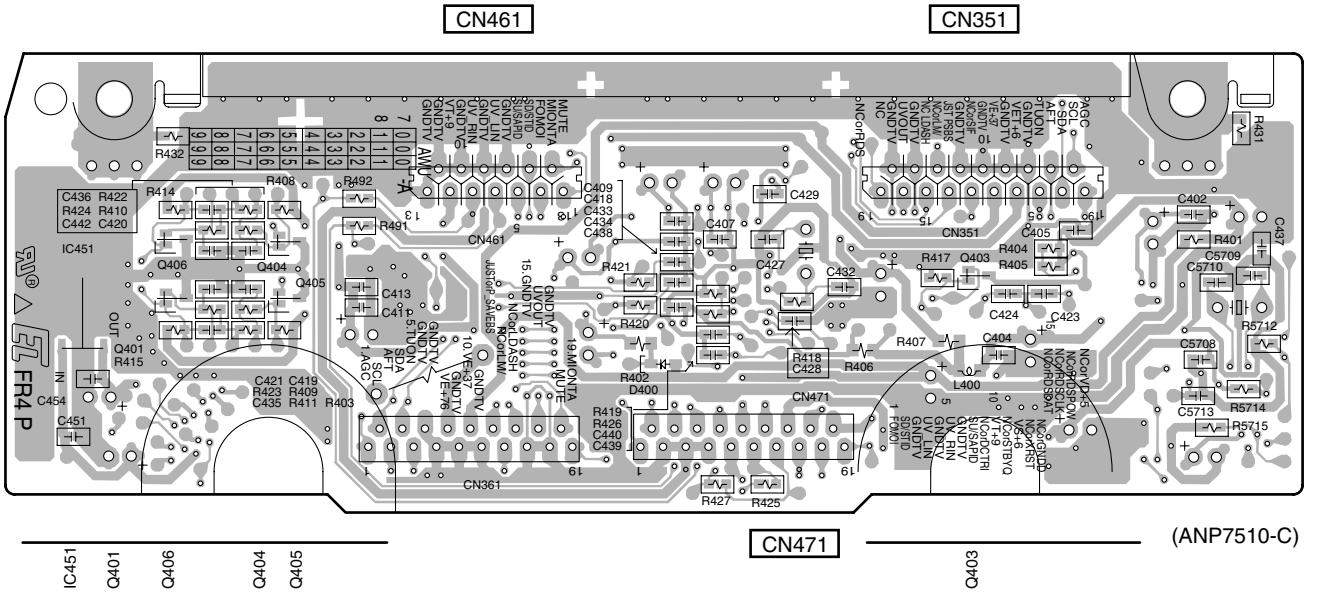
SIDE A **SIDE A**

B TV CONNECT ASSY



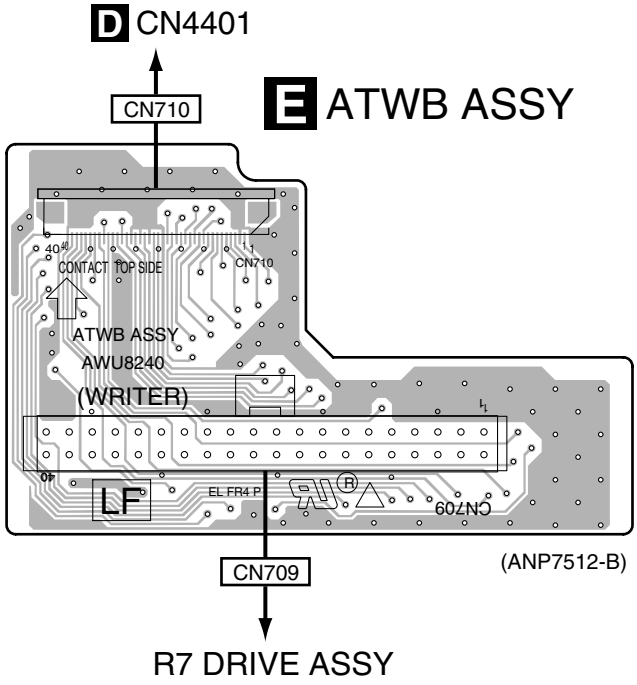
SIDE B **SIDE B**

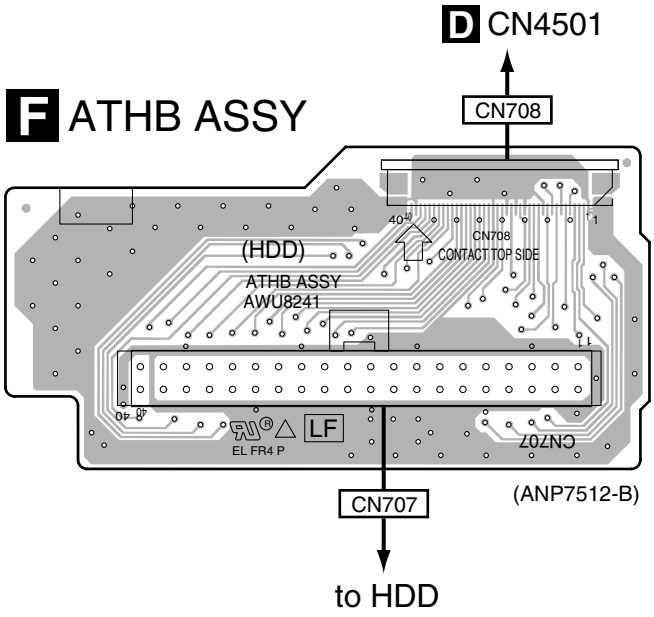
B TV CONNECT ASSY



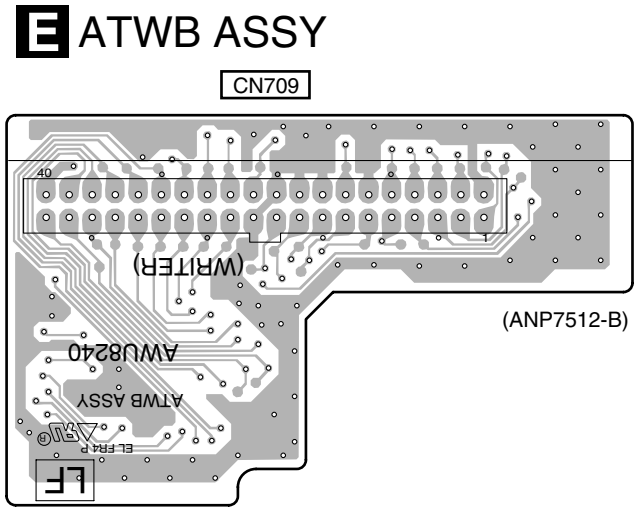
4.3 ATWB and ATHB ASSYS

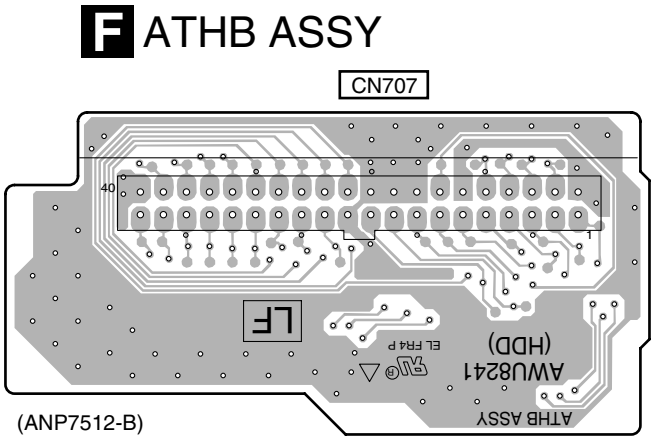
SIDE A





SIDE B

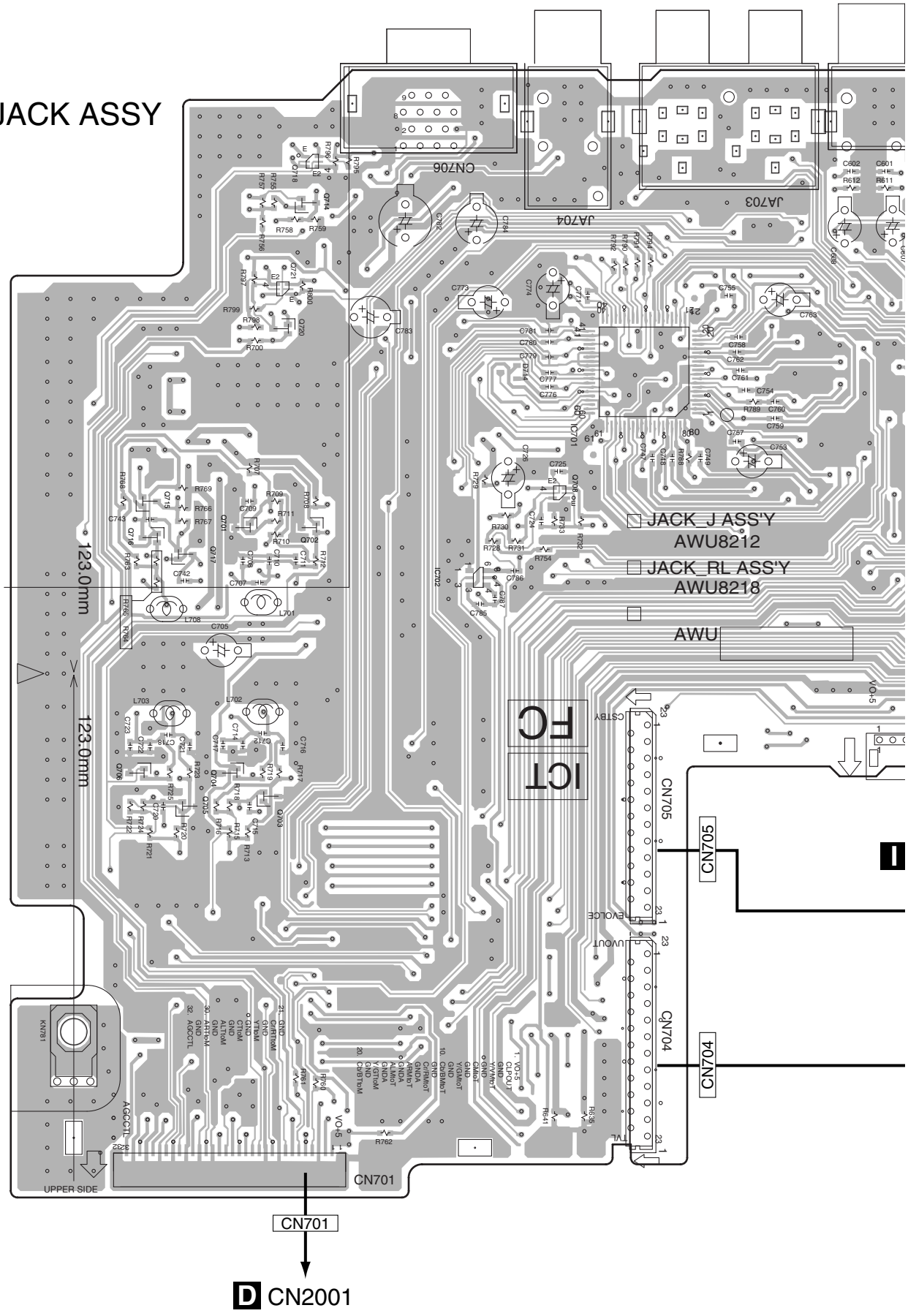




4.4 JACK and TRADE ASSYS

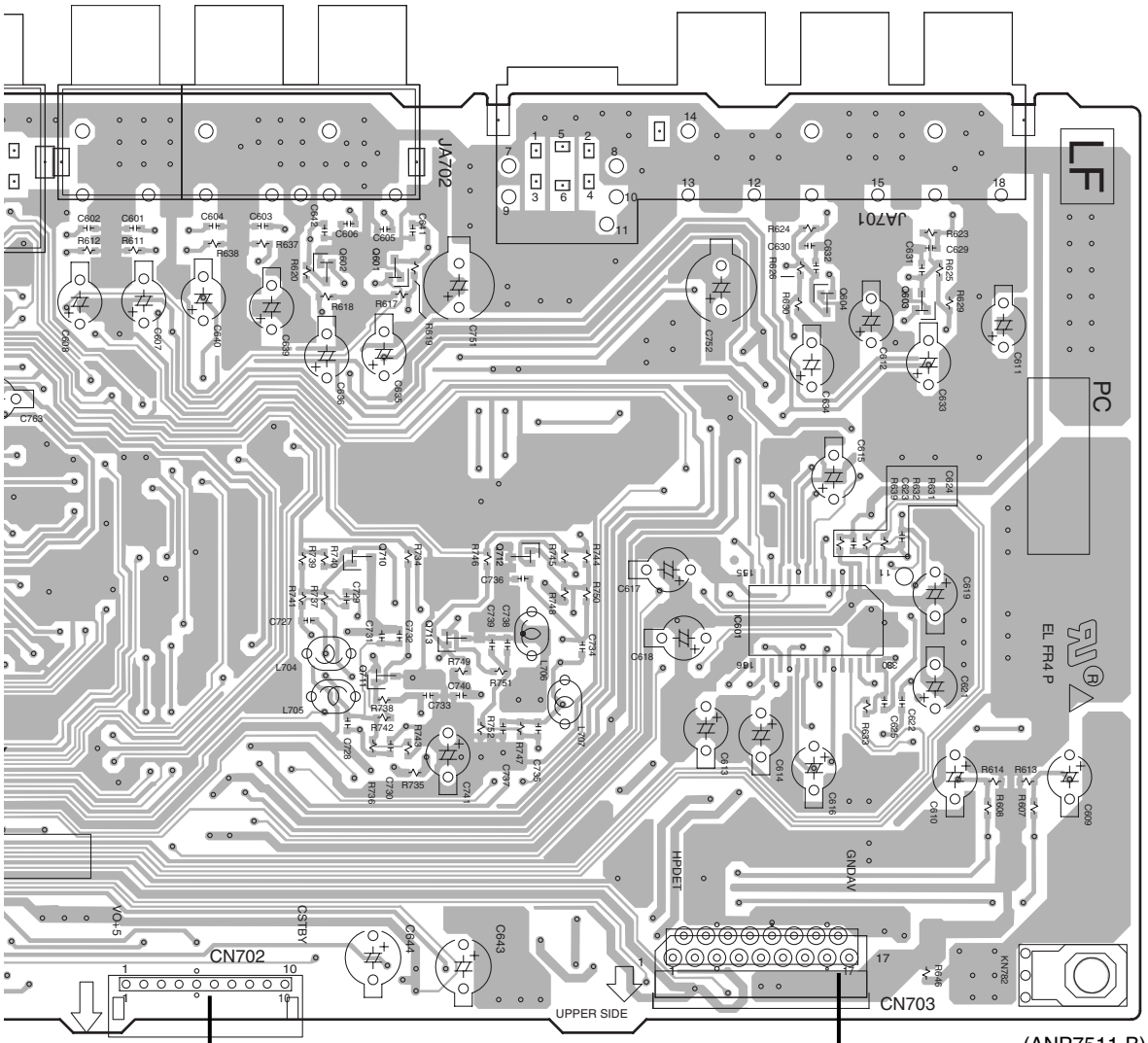
SIDE A

C JACK ASSY



D CN2001

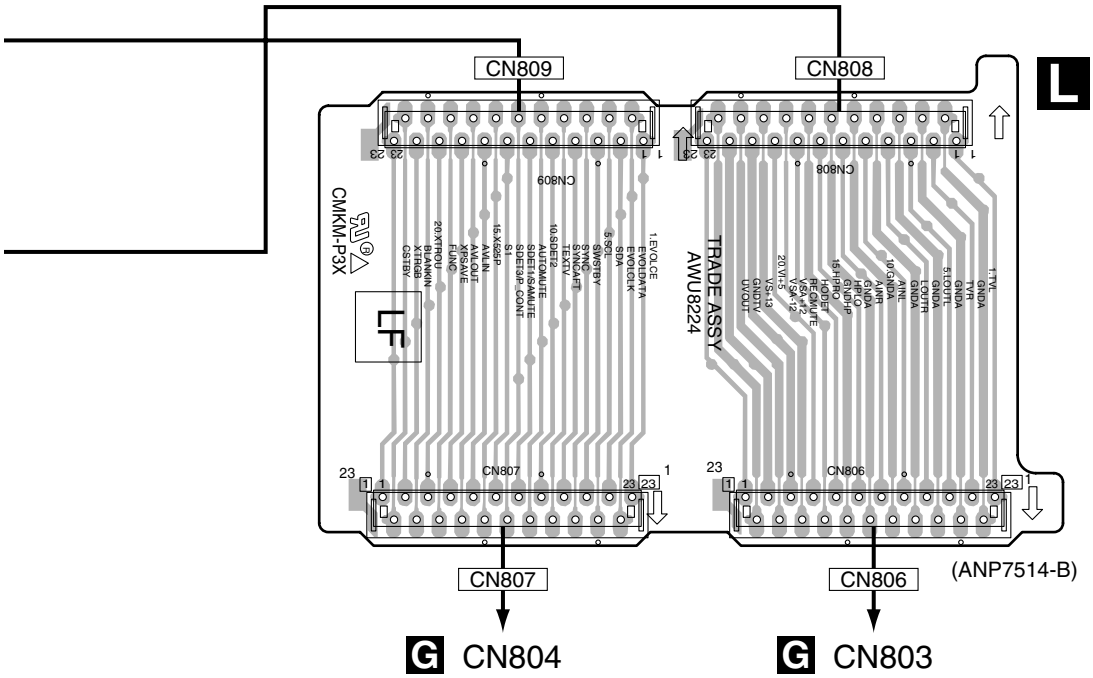
SIDE A



CN702 → **I** CN153

CN703 → **M** CN5201

L TRADE ASSY



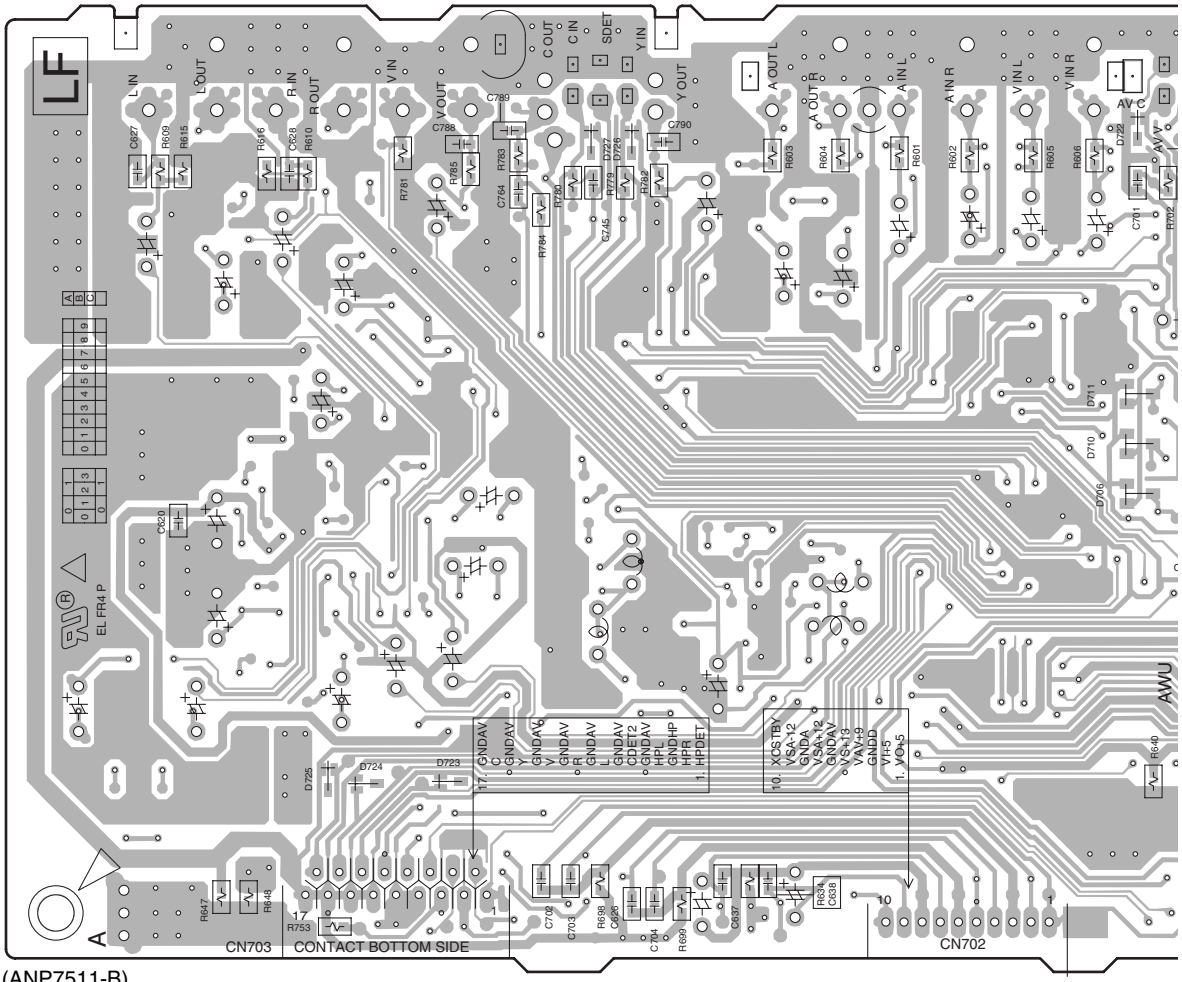
CN807 → **G** CN804

CN806 → **G** CN803

C **L**

SIDE B

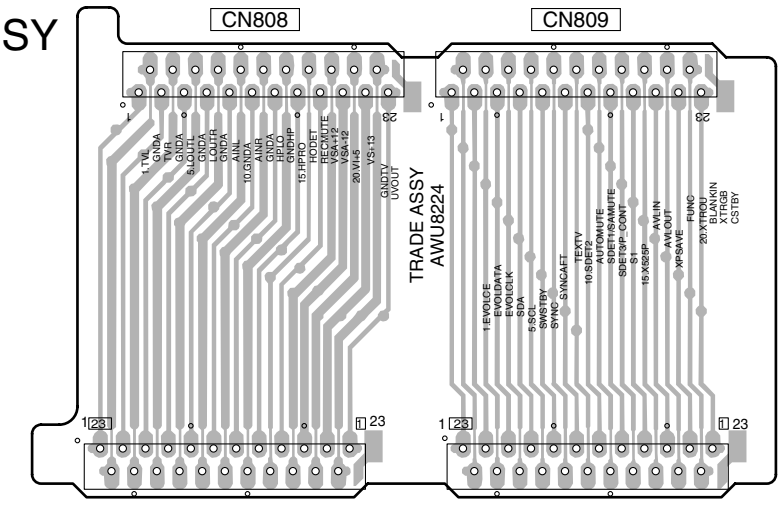
C JACK ASSY



(ANP7511-B)

CN703 CN702

L TRADE ASSY

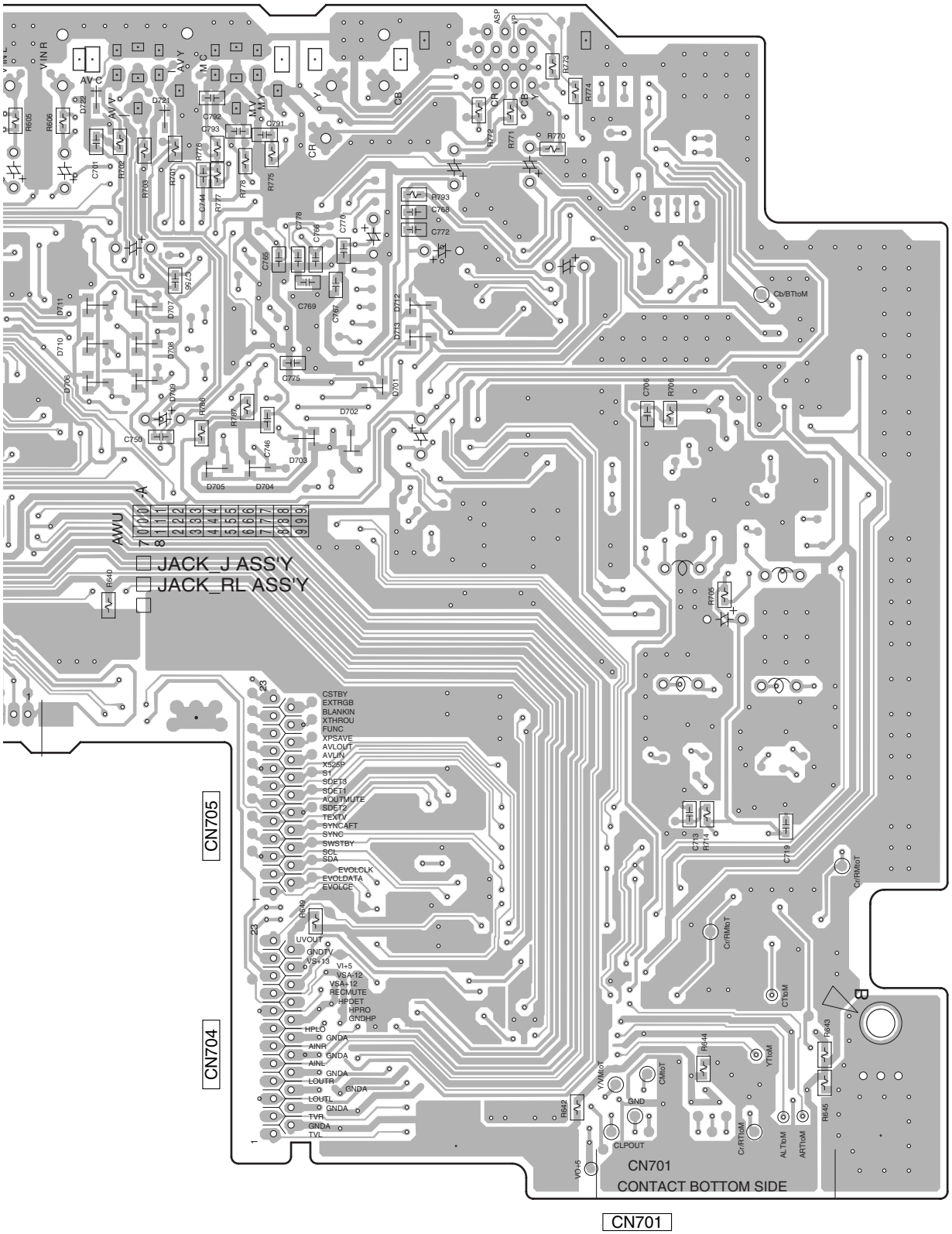


(ANP7514-B)

CN806 CN807

C L

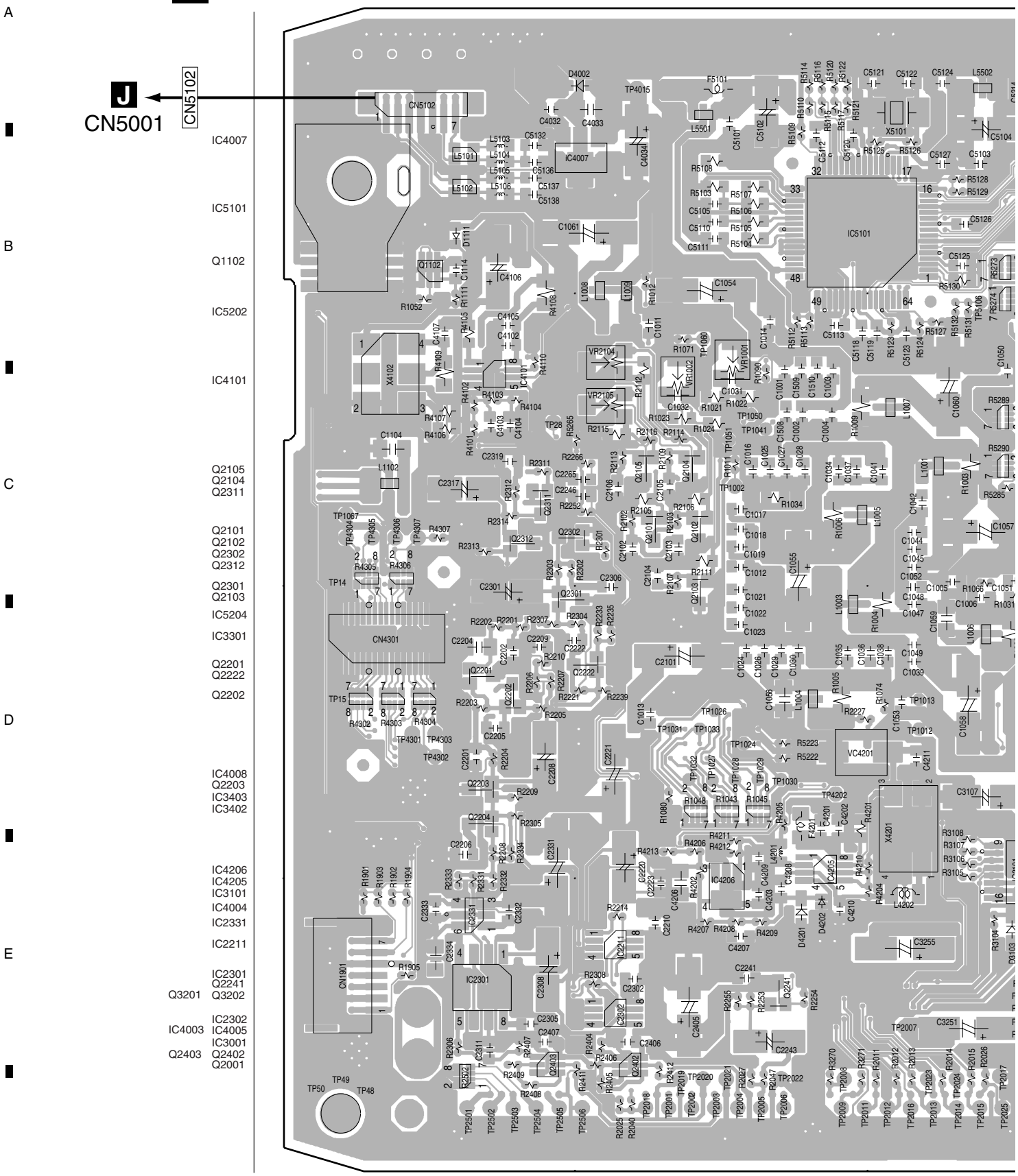
SIDE B


JACK_J ASS'Y
JACK_RL ASS'Y
CN705
CN704
CN701
CONTACT BOTTOM SIDE
CSTBY
EXTRGB
BLANKIN
XTHROU
FUNC
XPSAVE
AVLOUT
AVLIN
X525P
S1
SDET3
SDET1
AOUTMUTE
SDET2
TEXTV
SYNCAFT
SYNC
SWSTBY
SCL
SDA
EVOLCLK
EVOLDATA
EVOLCE
UVOUT
GNDTV
VS+13
VI+5
VSA+12
VSA+12
RECMUTE
HPDET
HPRO
GNDHP
HPLO
GNDA
AINR
GNDA
AINL
GNDA
LOUTR
GNDA
LOUTL
GNDA
TVR
GNDA
TVL
CLPOUT
GND
Cb/BToM
Cr/RMoT
CToM
YToM
ALTbiM
ARTbiM
Cr/RToM

4.5 MAIN ASSY

SIDE A

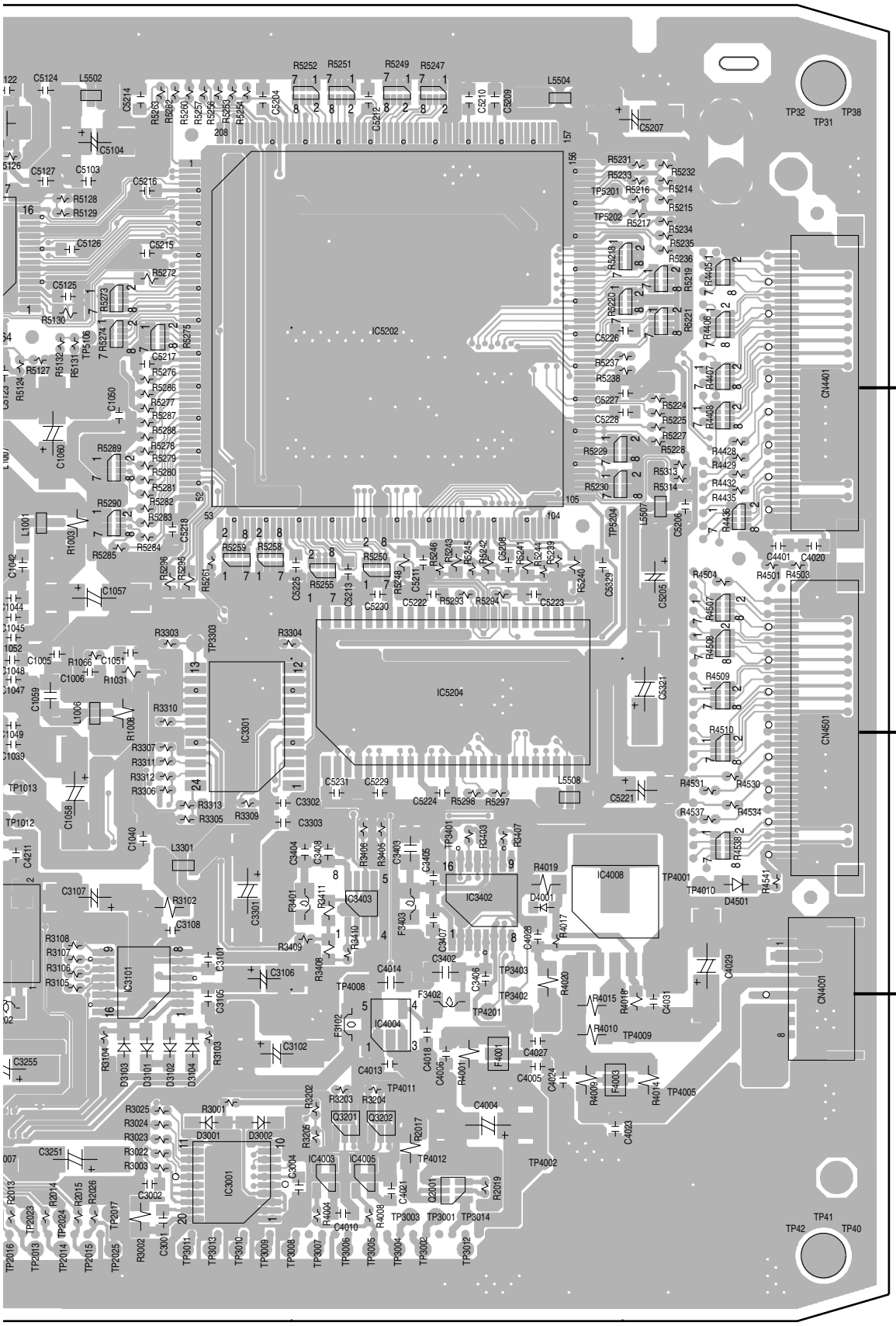
D MAIN ASSY



D

SIDE A

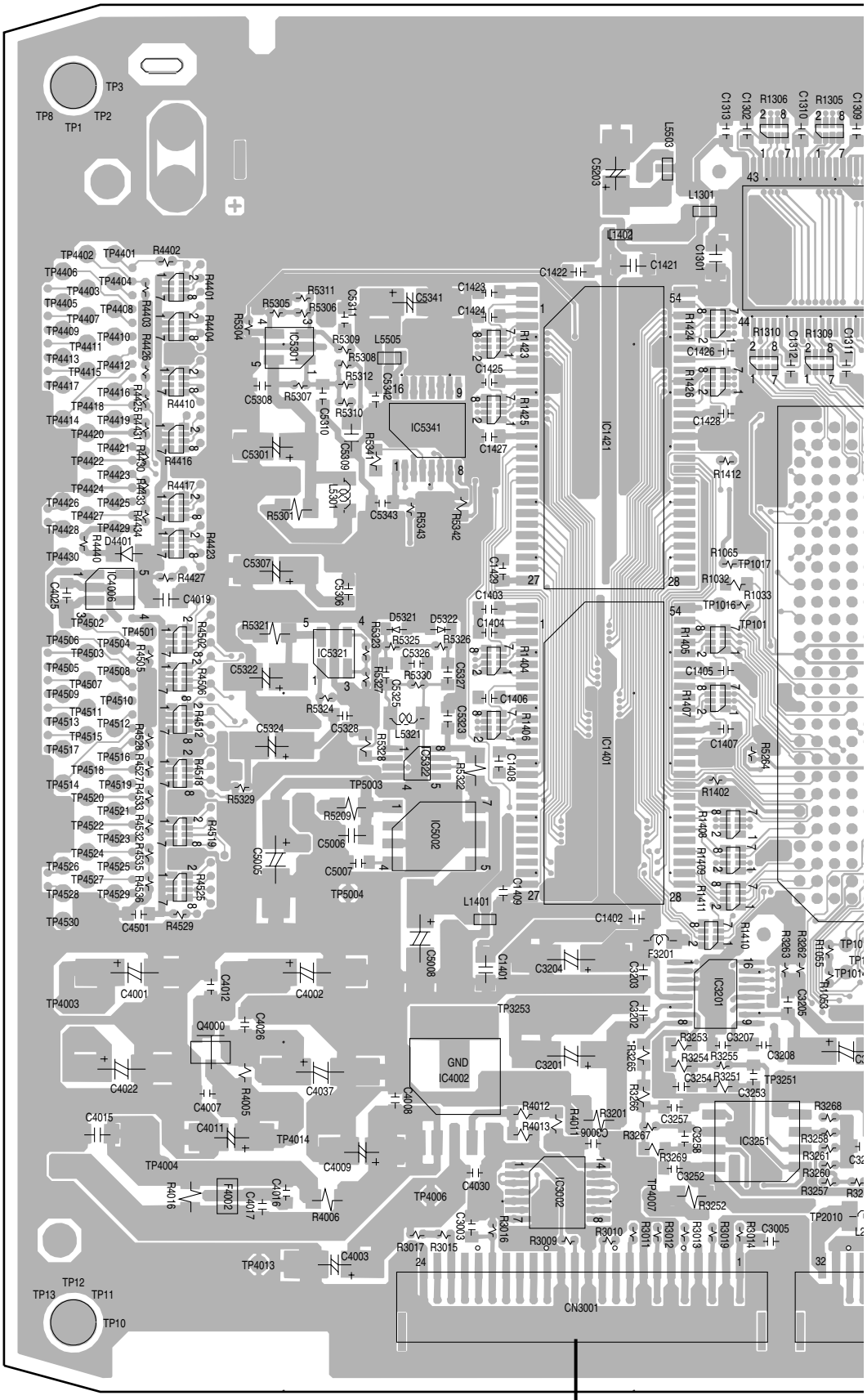
This PCB is six layer structure.



(VNP1960-C)

SIDE B

D MAIN ASSY



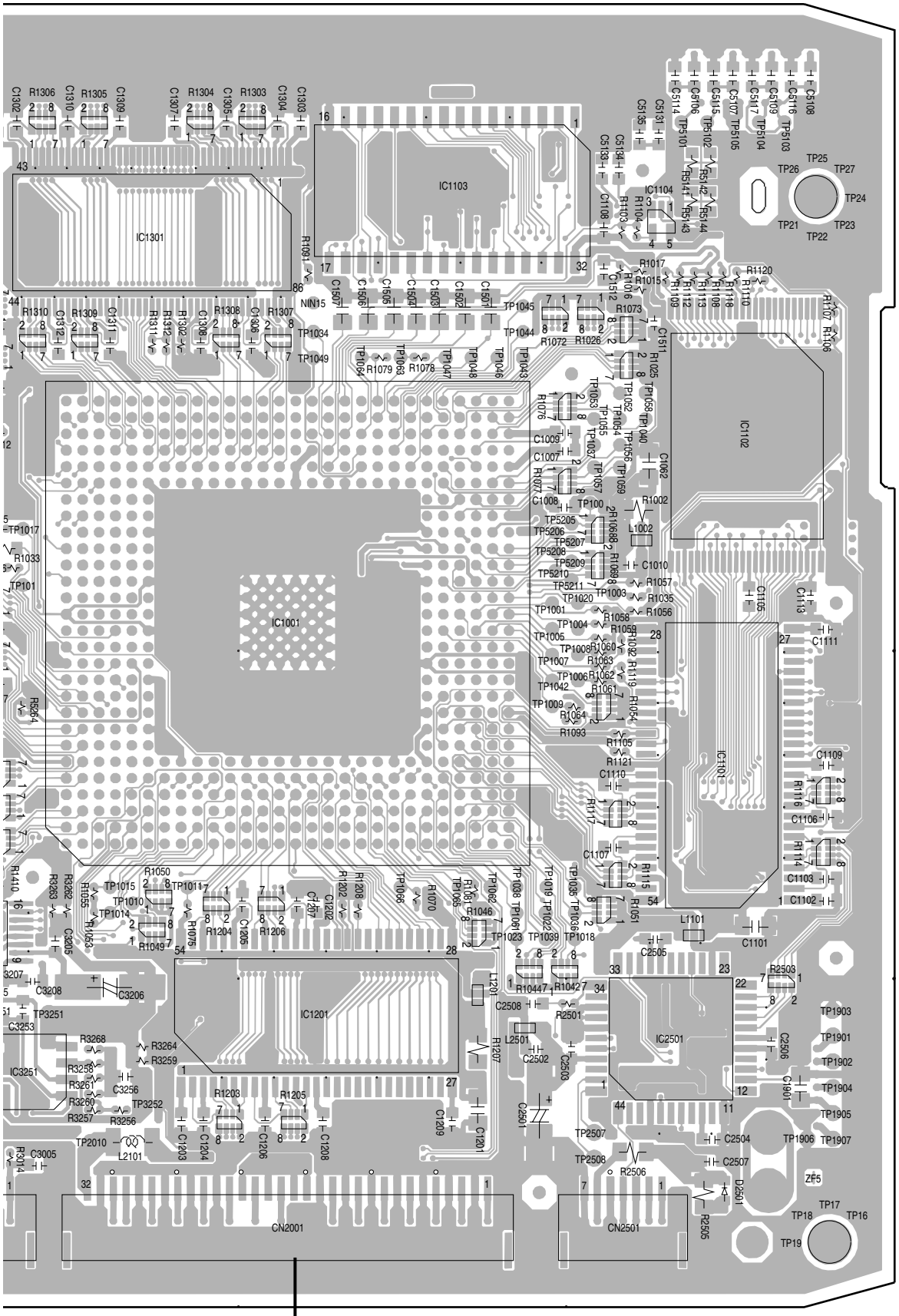
CN3001

G CN801

D

SIDE B

This PCB is six layer structure.



(VNP1960-C)

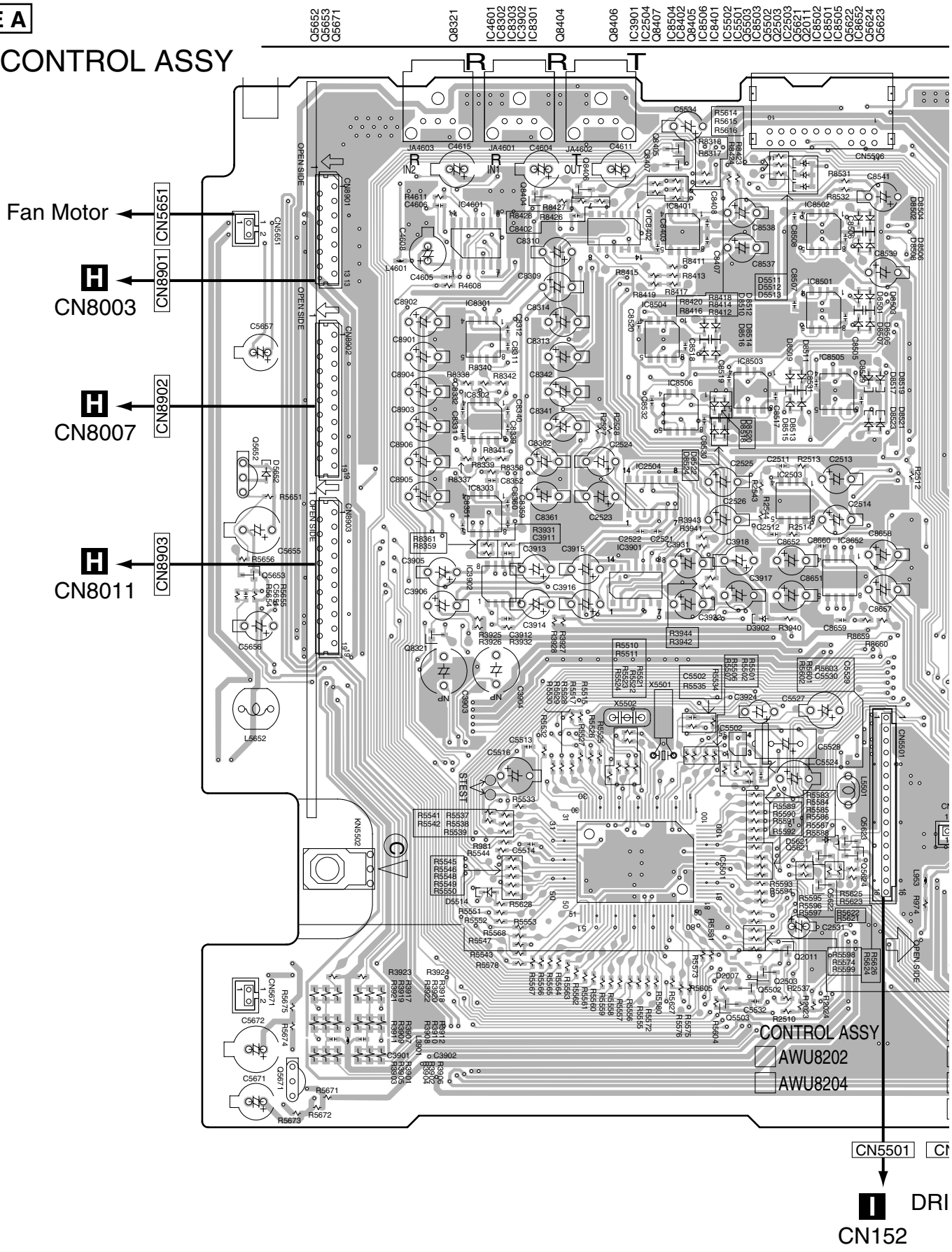
CN2001

C CN701

4.6 CONTROL ASSY

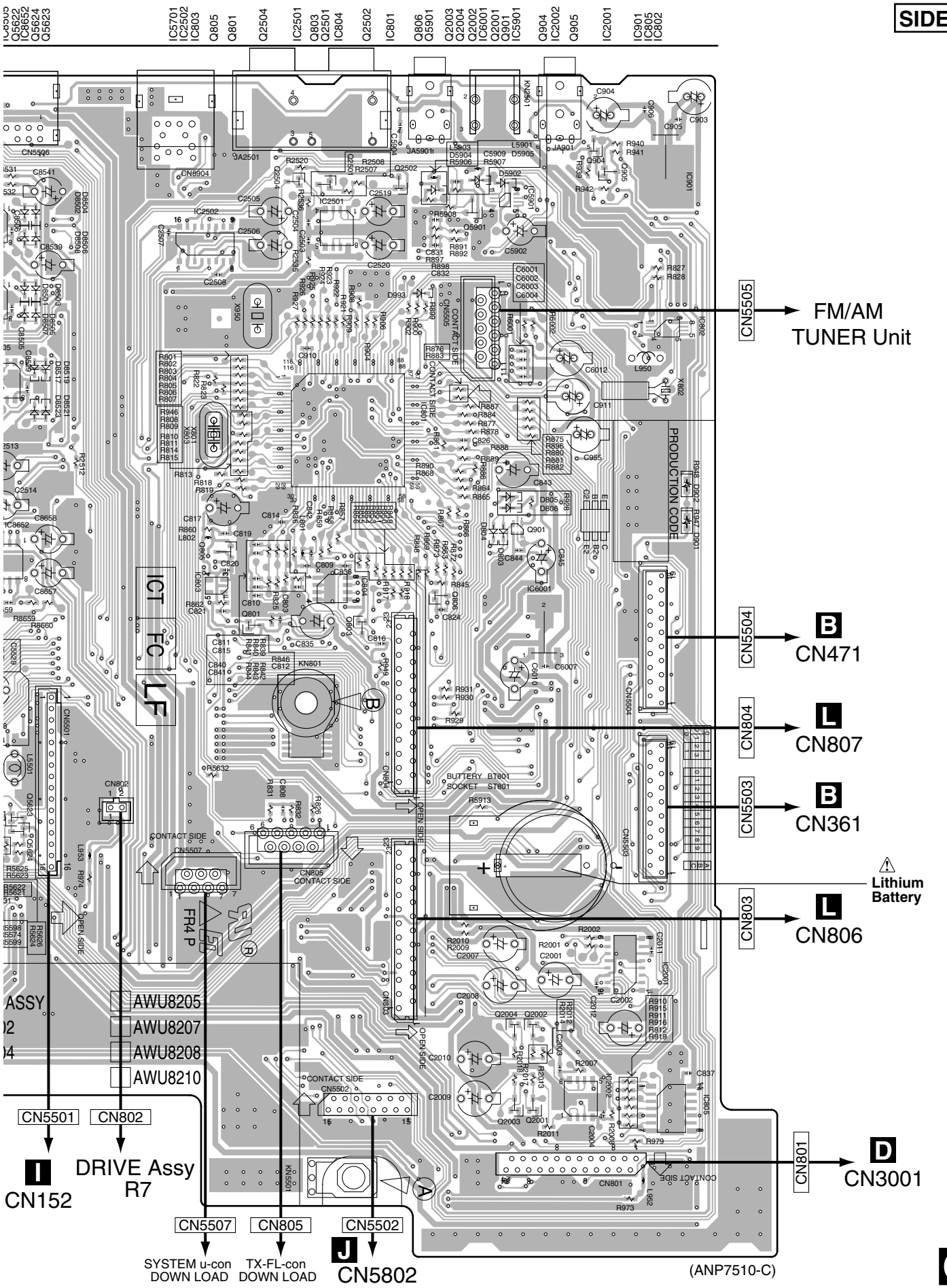
SIDE A

G CONTROL ASSY



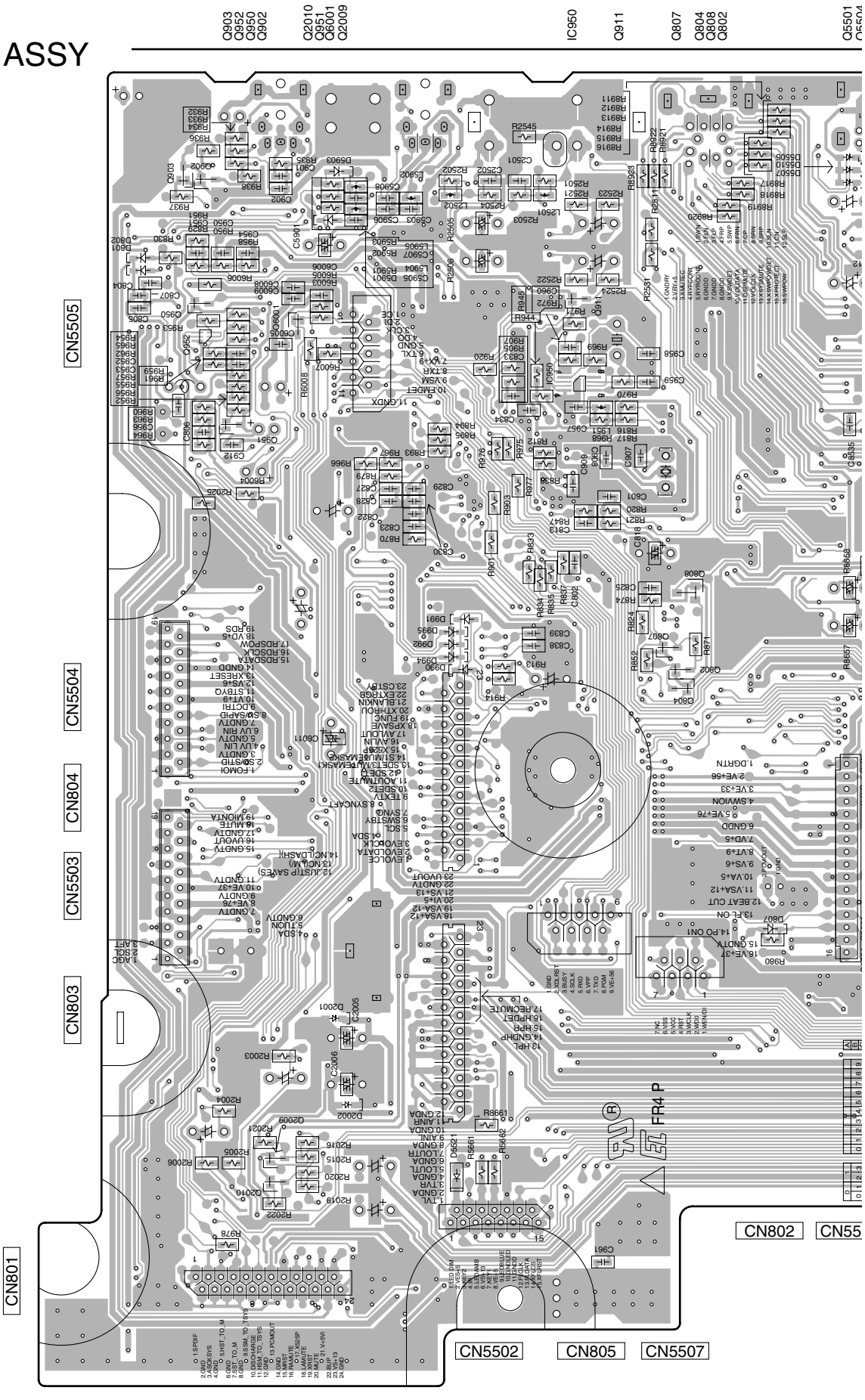
G

SIDE A


CN5505
FM/AM TUNER Unit
CN5504
B
CN471
CN804
L
CN807
CN5503
B
CN361
Lithium Battery
CN803
L
CN806
CN801
D
CN3001
PRODUCTION CODE
ICT
FC
LF
FR4 P
AWU8205
AWU8207
AWU8208
AWU8210
CN5501
CN802
I
CN152
DRIVE Assy R7
CN5507
SYSTEM u-con DOWN LOAD
CN805
TX-FL-con DOWN LOAD
CN5502
J
CN5802
(ANP7510-C)

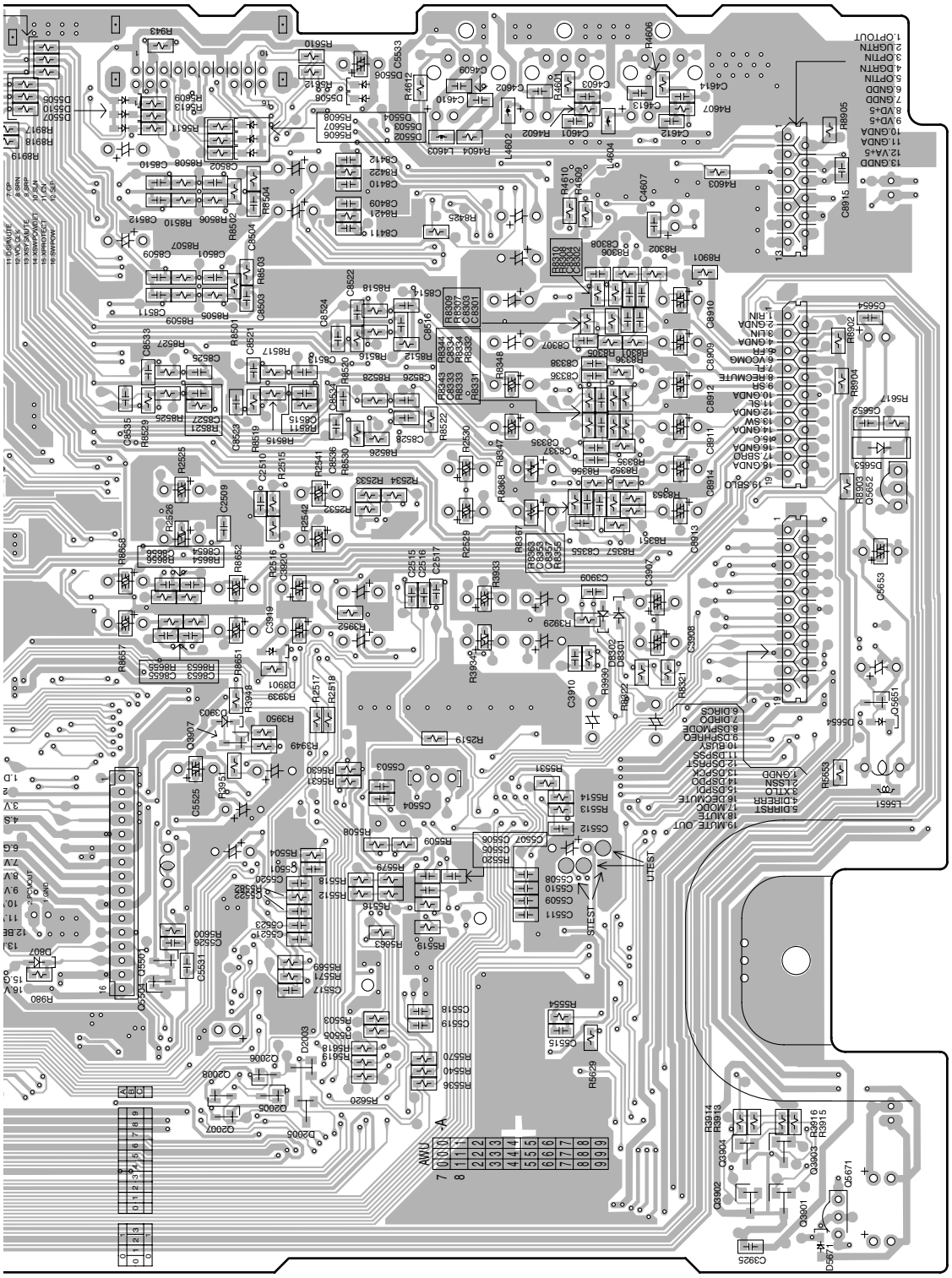
SIDE B

G CONTROL ASSY



SIDE B

Q5501 Q5504 Q3907 Q2008 Q2007 Q2006 Q2005 Q3902 Q3904 Q3903 Q3901 Q5651



CN8901 CN5651

CN8902

CN8903

CN802 CN5501

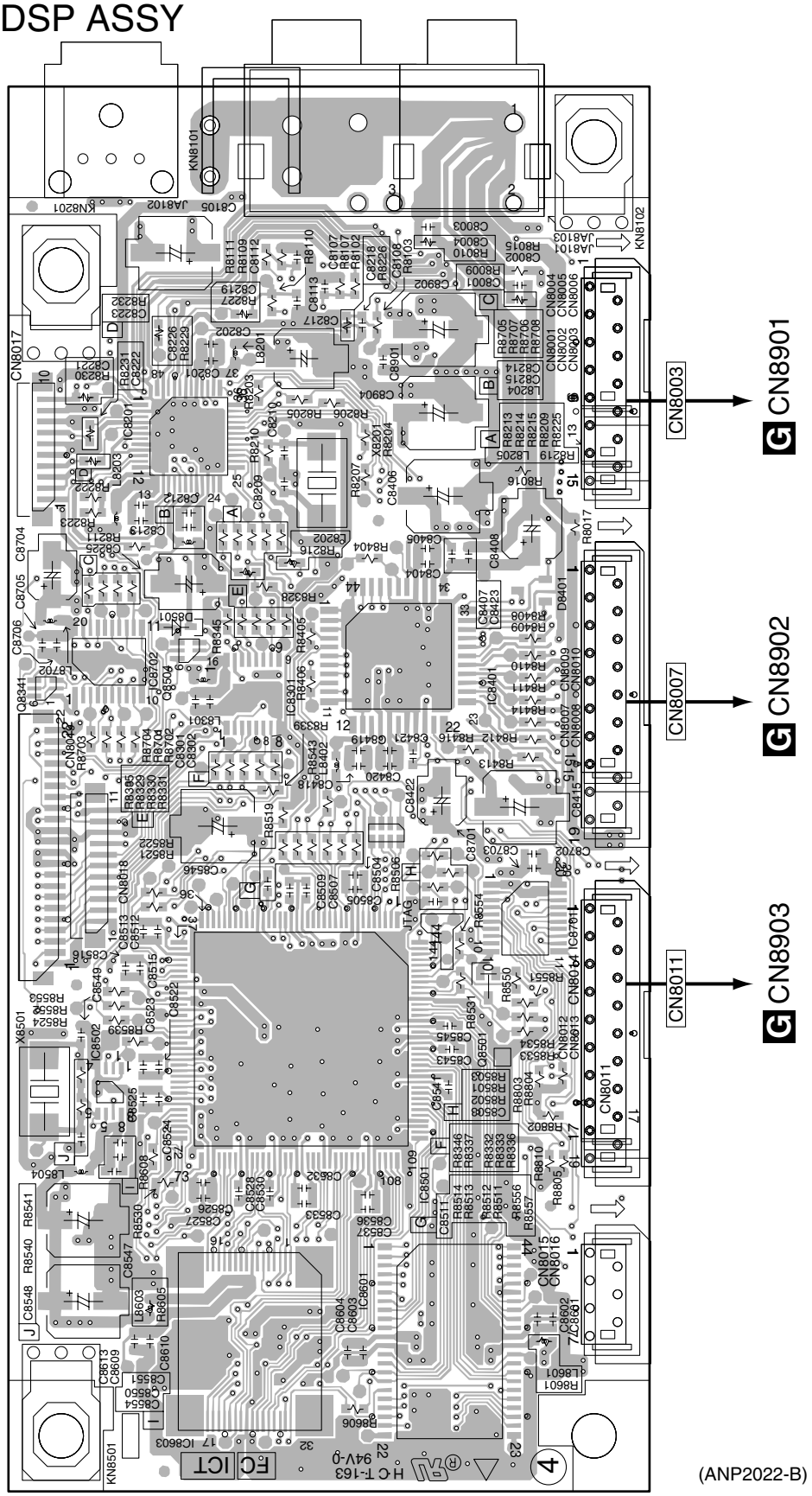
(ANP7510-C)

4.7 DSP ASSY

SIDE A

H DSP ASSY

SIDE A

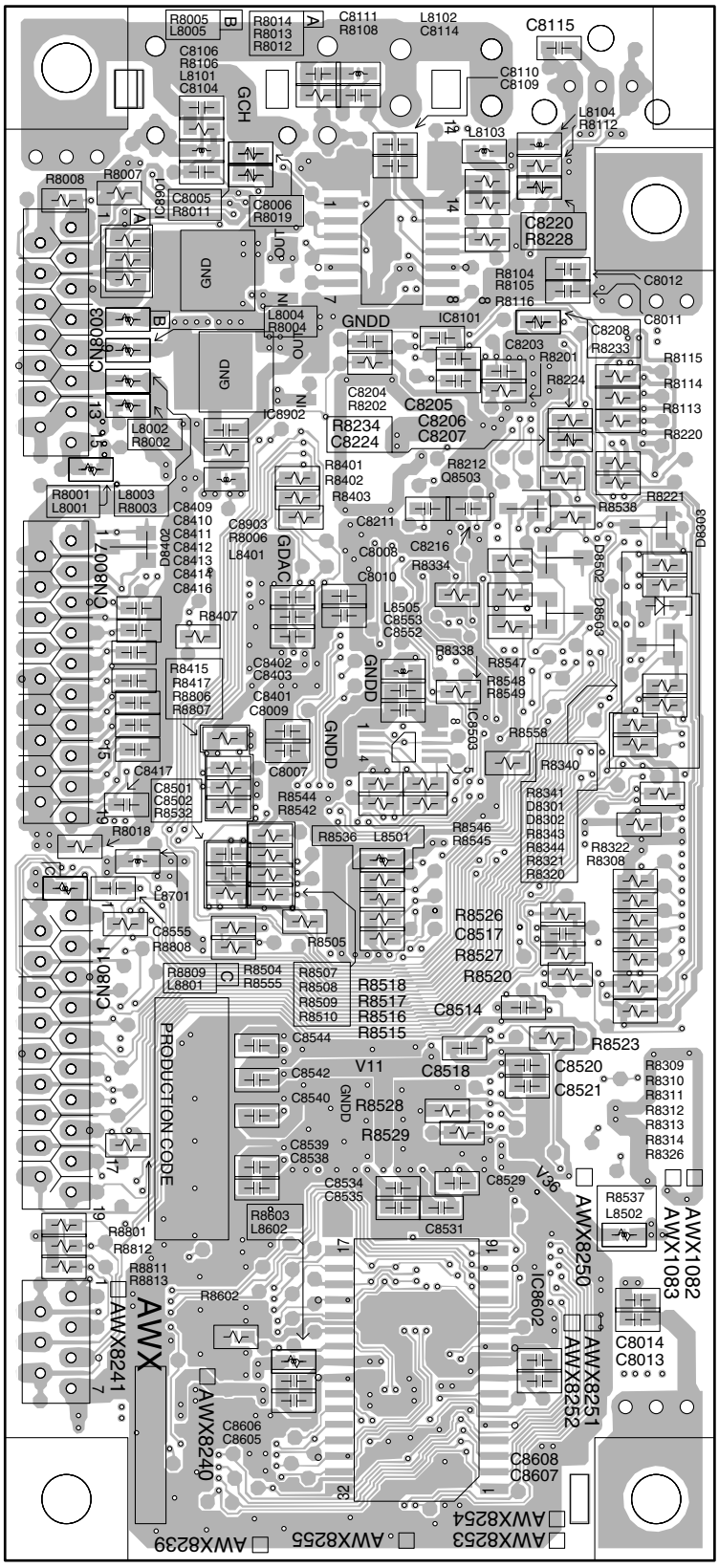


(ANP2022-B)

SIDE B

SIDE B

H DSP ASSY

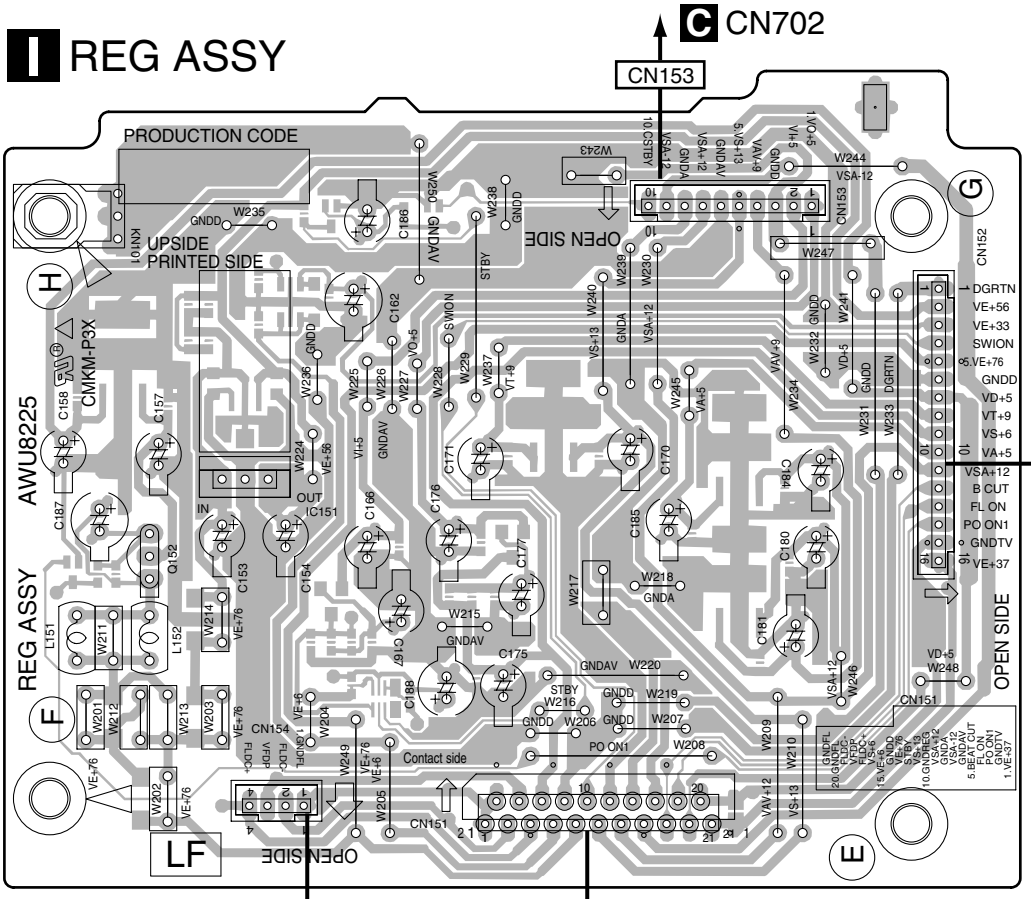


(ANP2022-B)

4.8 REG ASSY

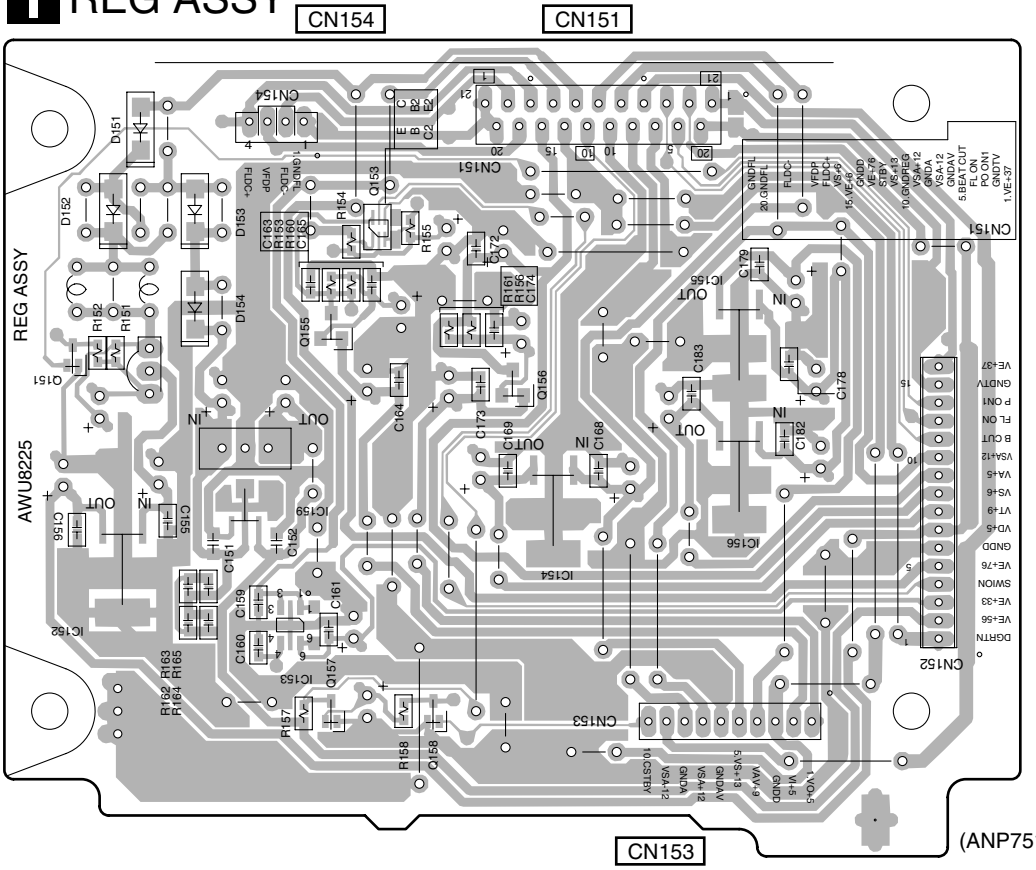
SIDE A

I REG ASSY



SIDE B

I REG ASSY

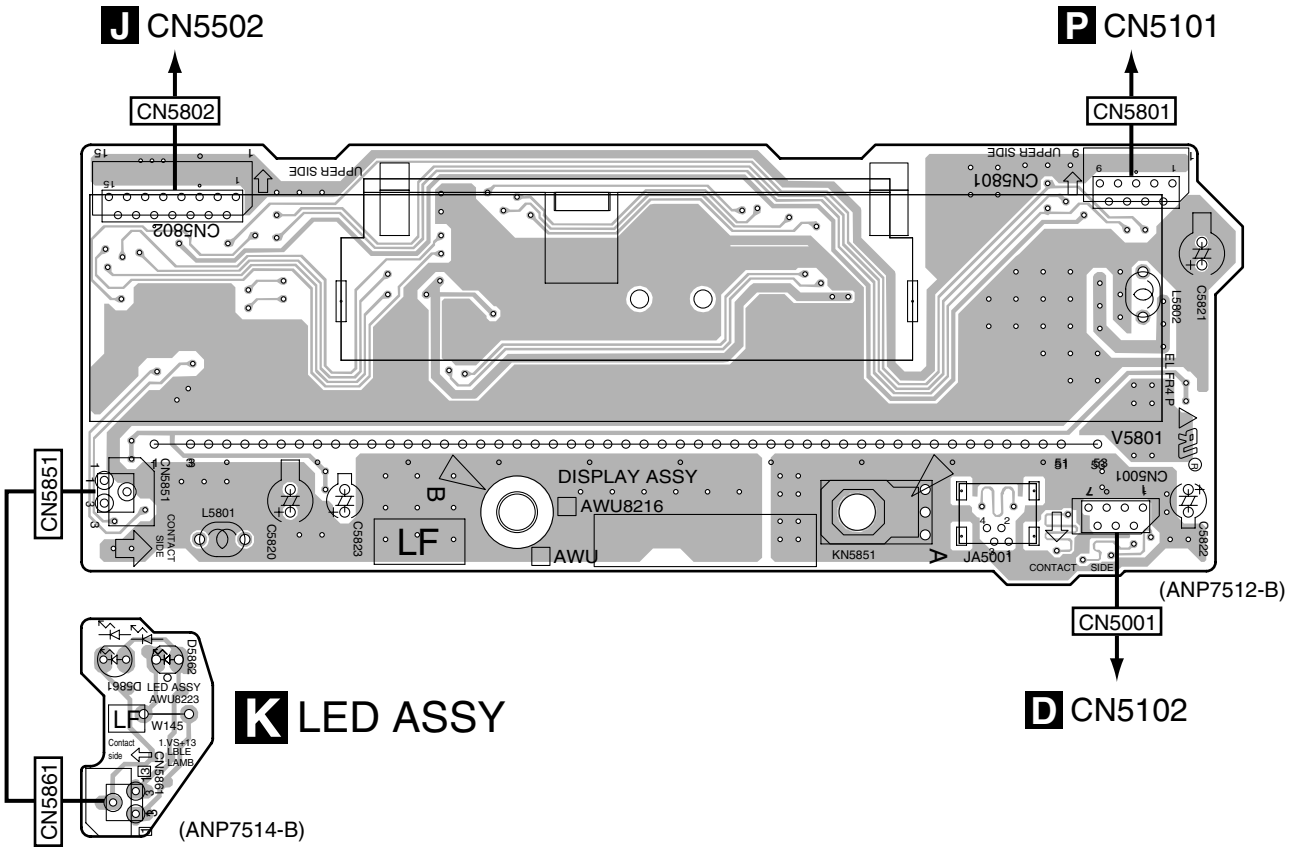


4.9 DISPLAY and LED ASSYS

SIDE A

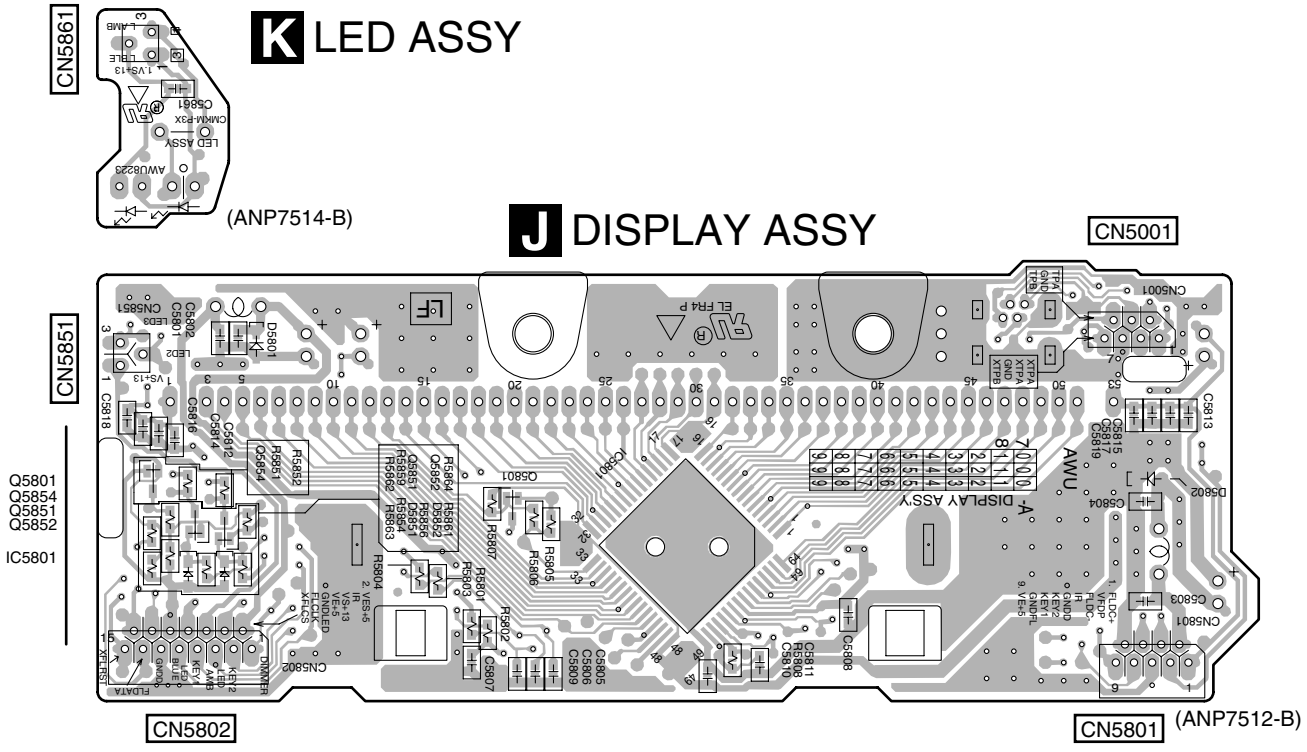
SIDE A

J DISPLAY ASSY



SIDE B

SIDE B



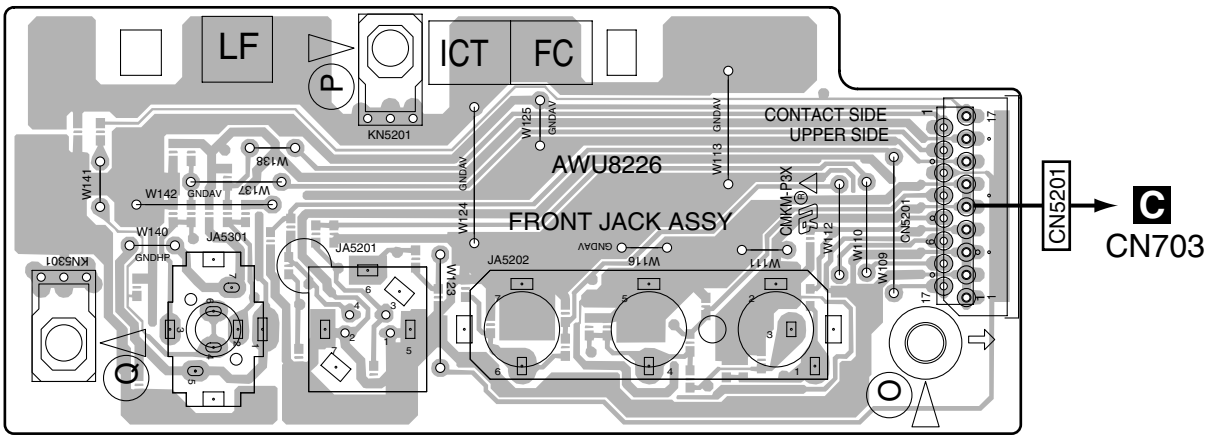
J K J K

4.10 FRONT JACK ASSY

SIDE A **SIDE A**

A

M FRONT JACK ASSY



(ANP7514-B)

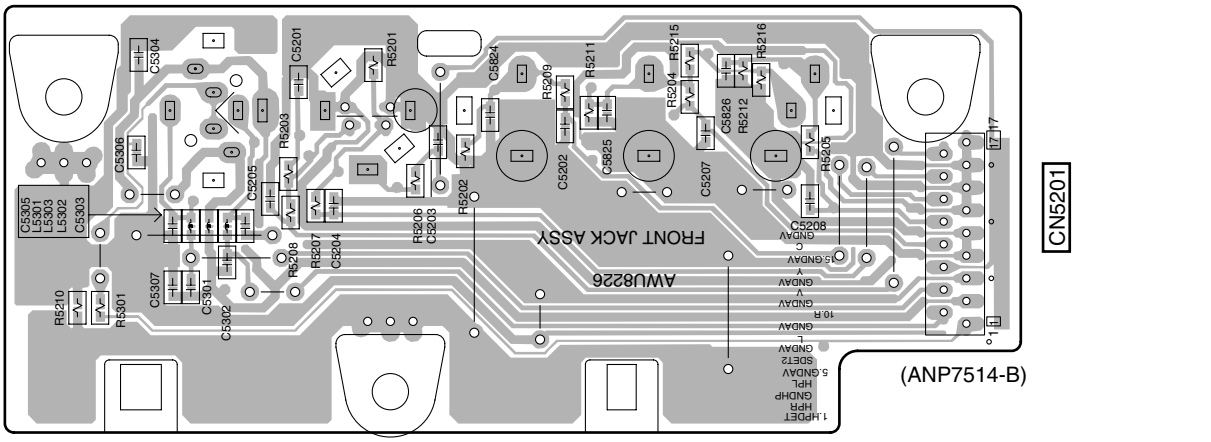
B

C

SIDE B **SIDE B**

D

M FRONT JACK ASSY



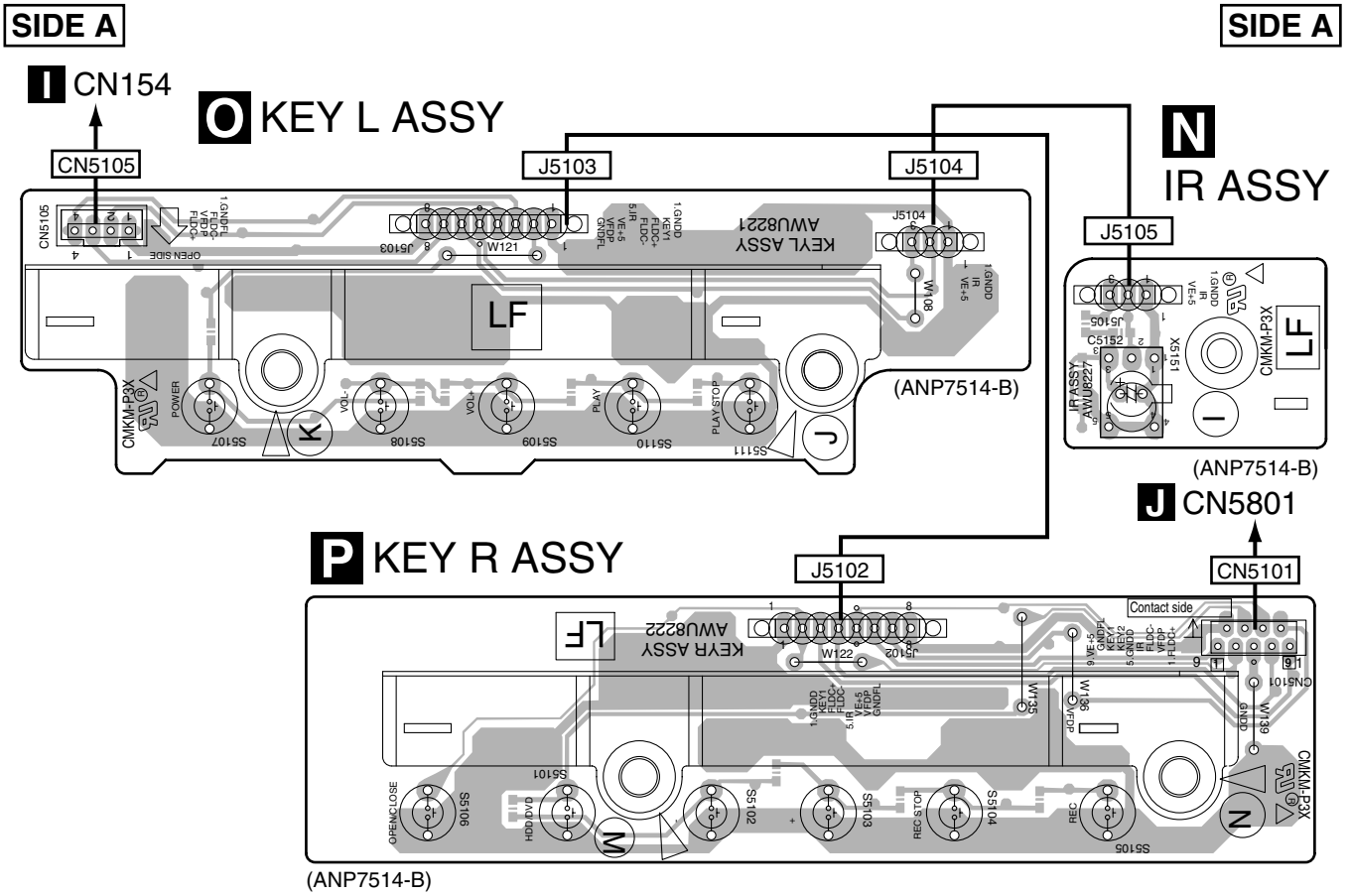
(ANP7514-B)

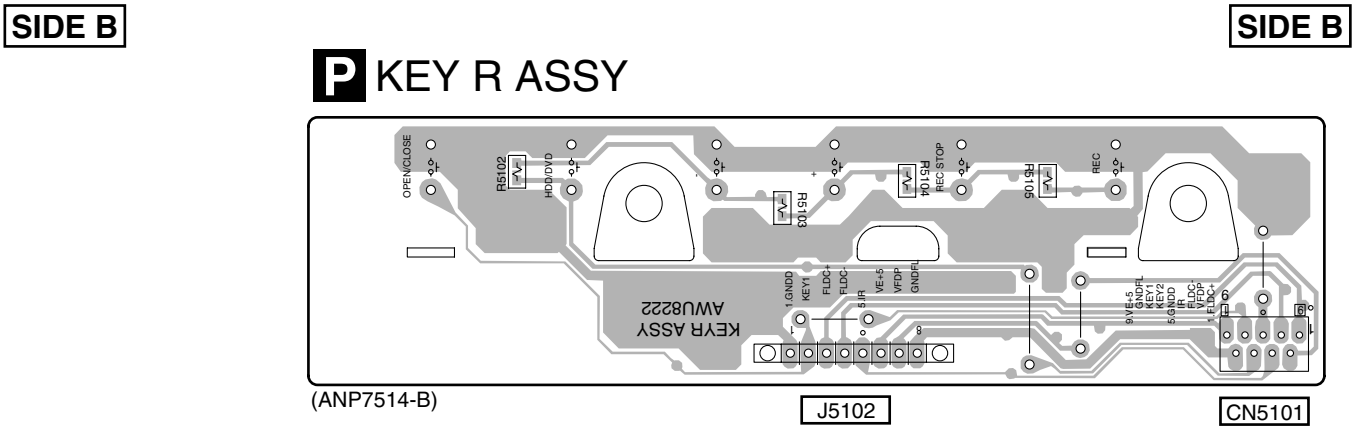
E

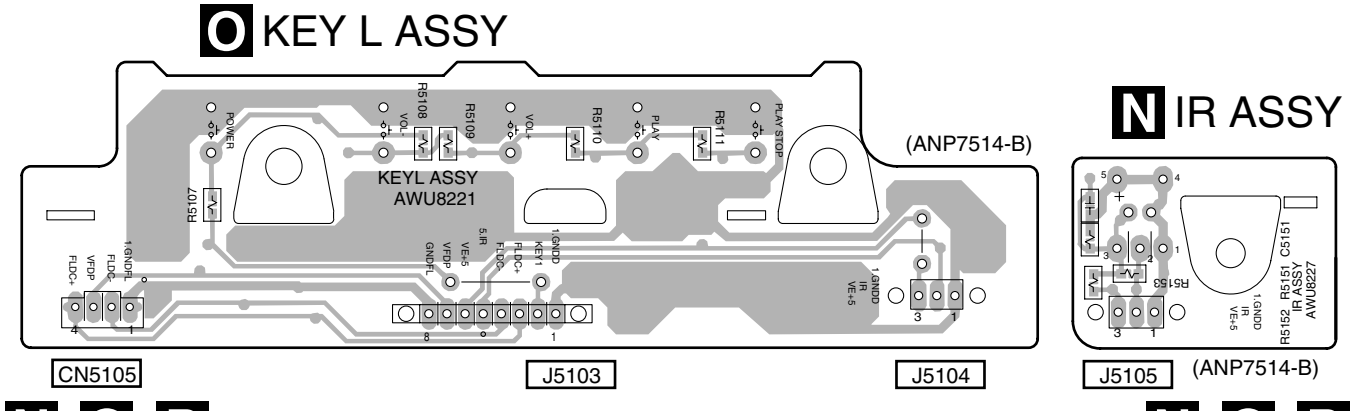
F

M M

4.11 IR, KEY L and KEY R ASSYS







5. PCB PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω	→ *56 x 10[1]* →	*561*	*RD1/4PU 5 6 1 J*
47k Ω	→ *47 x 10[3]* →	*473*	*RD1/4PU 4 7 3 J*
0.5 Ω	→	*R50*	*RN2H R 5 0 K*
1 Ω	→	*1R0*	*RS1P 1 R 0 K*

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω	→ *562 x 10[1]* →	*5621*	*RN1/4PC 5 6 2 1 F*

LIST OF ASSEMBLIES

Mark	No.	Description	Part No.
	1	..DVD CONTROL ASSY	AWM7918
	2	..CONTROL ASSY	AWU8208
	2	..TV CONNECT ASSY	AWU8209
	1	..JACK ASSY	AWM7923
	2	..JACK ASSY	AWU8218
	1	..JACK 2 ASSY	AWM7937
	2	..DISPLAY ASSY	AWU8216
	2	..TV MODULE ASSY	AWU8220
	2	..ATWB ASSY	AWU8240
	2	..ATHB ASSY	AWU8241
	1	..COMPLEX ASSY	AWM7924
	2	..KEY L ASSY	AWU8221
	2	..KEY R ASSY	AWU8222
	2	..LED ASSY	AWU8223
	2	..TRADE ASSY	AWU8224
	2	..REG ASSY	AWU8225
	2	..FRONT JACK ASSY	AWU8226
	2	..IR ASSY	AWU82227
	1	..DSP ASSY	AWX8486
	1	..MAIN ASSY	VWV2025
⚠	1	..POWER SUPPLY UNIT	AWR7013
	1	..FM/AM TUNER UNIT	AXX7173

A TV MODULE ASSY

SEMICONDUCTORS

Mark	No.	Description	Part No.
		IC302	TDA9818TS
		Q302, Q308	2SA1576A
		Q300, Q304, Q307, Q309, Q314	2SC4081
		Q316, Q317	2SC4081
		Q310, Q312	2SC4082
		Q315	DTA124EUA
		Q301	RN4903
		Q303, Q313	UMF21N
		D300	1SS355
		D302, D303	1SS356
		D301	UDZS33(B)

COILS AND FILTERS

Mark	No.	Description	Part No.
		L304 RADIAL INDUCTOR	ATH1109
		L315 VCO COIL	ATL7011
		F302 CERAMIC TRAP	BTF1121
		L301, L303, L306 CHIP BEADS	CTF1399
		L305	LCKAWR22J2520
		L311, L314	LCKAWR47J2520
		L307, L313	LCYA150J2520
		L309	LCYAR68J2520
		F306 SAW FILTER	VTF1177
		F305 SAW FILTER	VTF1178
		F304 IF TRAP FILTER	VTF1180
		F303 IF TRAP FILTER	VTF1181
		F301 TRAP FILTER	VTF1183
		L391, L392 CHIP BEADS	VTL1081

CAPACITORS

Mark	No.	Description	Part No.
		C333	CCSRCH150J50
		C339	CCSRCH220J50
		C343	CCSRCH270J50
		C315, C316	CCSRCH330J50
		C325	CCSRCH7R0D50
		C344	CCSRUJ4R0C50
		C301	CEAT100M50
		C319	CEAT101M16
		C308	CEAT102M6R3
		C303	CEAT330M25
		C313, C324	CEAT471M6R3
		C336, C337	CKSQYB225K10
		C332, C334, C335, C340, C341	CKSRYB102K50
		C322, C323, C327	CKSRYB103K50
		C329	CKSRYB104K16
		C304, C305, C328, C331	CKSRYB222K50
		C338	CKSRYB224K10
		C307, C326, C330	CKSRYF104Z25
		C311	CKSRYF104Z50

RESISTORS

Mark	No.	Description	Part No.
		R399	RS1/10S0R0J
		R305	RS1/10S150J
		VR300 (10k)	VCP1156
		Other Resistors	RS1/16S###J

OTHERS

Mark	No.	Description	Part No.
		300 SCREW PLATE	VNE1948
		U301 TV TUNER PACK	VXF1023
		CN300 19P SOCKET	XKP3080

Mark	No.	Description	Part No.

B TV CONNECT ASSY

SEMICONDUCTORS

⚠	IC451	BA06FP
	IC401	MSP3455G
	Q401, Q404–Q406	2SA1576A
	Q402, Q403	2SC4081
	Q400	2SD1664
	D400	1SS355

COILS AND FILTERS

	L400 CHIP BEADS	CTF1399
	L402, L403	LCYA150J2520
	L404	LCYA4R7J2520
	L401	LCYA8R2J2520

CAPACITORS

	C424	CCSRCH121J50
	C431	CCSRCH181J50
	C439, C440	CCSRCH220J50
	C423	CCSRCH470J50
	C426, C428	CCSRCH560J50
	C427	CCSRCH5R0C50
	C430	CCSRCH680J50
	C432	CCSRCH6R0D50
	C452, C453	CEAL100M50
	C400, C401, C403, C406	CEAL101M16
	C416	CEAT100M50
	C412, C417	CEAT101M16
	C408	CEJQ100M50
	C410	CEJQ3R3M50
	C421, C433, C434, C442	CKSRYB102K50
	C414, C435, C436	CKSRYB103K50
	C402, C404, C405, C407, C409	CKSRYB104K25
	C411, C413, C418, C422, C425	CKSRYB104K25
	C429, C438	CKSRYB104K25
	C419, C420	CKSRYB472K50

RESISTORS

	R406, R407	RS1/10S0R0J
	R402	RS1/10S100J
	R451	RS1LMF3R3J
	Other Resistors	RS1/16S###J

OTHERS

	CN361, CN471 19P CONNECTOR	VKN1775
	KN401 WRAPPING TERMINAL	VNF1084
	CN351 19P PLUG	XKP3069
	X400	VSS1189
	CERAMIC RESONATOR (18.432MHz)	

C JACK ASSY

SEMICONDUCTORS

	IC701	LA73033M
	IC601	LC75342M
	IC702	MM1504XN
	Q702, Q704, Q706, Q716	2SA1576A
	Q717	2SC4081
	Q715	DTC124EUA
	Q601–Q604	DTC643TU
	Q708	HN1B04FU
	Q718	RN4903
	D721–D727	DF3A5.6FU

COILS AND FILTERS

	L701–L703	LFEA100J
	L708	LFEA2R2J

CAPACITORS

	C623–C625	CCSRCH101J50
	C710, C716, C721, C766, C767	CCSRCH150J50
	C708, C714, C722	CCSRCH270J50
	C725	CCSRCH331J50
	C724	CCSRCH470J50
	C742	CCSRCH680J50
	C631, C632, C641, C642	CCSRCH821J50
	C607–C618, C633–C636	CEAT100M50
	C639, C640	CEAT100M50
	C619, C621, C705, C753, C763	CEAT101M16
	C773, C774	CEAT101M16
	C751, C752, C782	CEAT102M6R3
	C726	CEAT220M50
	C783, C784	CEAT471M6R3
	C701, C745	CKSRYB103K50
	C620, C622, C706, C713, C719	CKSRYB104K25
	C744, C746–C750, C754–C762	CKSRYB104K25
	C764, C768–C772, C775–C781	CKSRYB104K25
	C785	CKSRYB104K25
	C786	CKSRYB105K10

RESISTORS

	R710, R717, R723	RS1/16S5600F
	R701–R703, R763, R770–R772	RS1/16S75R0F
	R775, R776, R778–R783, R785	RS1/16S75R0F
	Other Resistors	RS1/16S###J

OTHERS

	CN703 17P FFC CONNECTOR	52044-1745
	JA701 JACK	AKB7167
	JA702 6P PIN JACK	AKB7168
	JA703 2P*DIN+2PJACK	AKB7169
	CN702 CONNECTOR POST 10P	S10B-PH-K
	JA704 3P PIN JACK	VKB1153
	CN701 32P FFC CONNECTOR	VKN1815
	KN781, KN782 WRAPPING TERMINAL	VNF1084
	CN704, CN705 23P PLUG	XKP3071

D MAIN ASSY

SEMICONDUCTORS

	IC3101	AK5357VT
	IC2301	BA7655AF
	IC1103	CY62148VLL-70ZI
	IC5204	K4S161622D-TC80
	IC1101	K4S281632E-TC75
	IC1401,IC1421	K4S561632E-TC75
	IC1001	M65673WG-A
	IC5002	MM1562FF
⚠	IC4007	MM1603DP
	IC1301	MT48LC4M32B2TG-7
⚠	IC4004,IC4006	NJM2872F05
	IC4206,IC5301,IC5321	NJU7013F
	IC3201	PCM1742KE
⚠	IC4008	PQ015YZ01ZP
⚠	IC4002	PQ070XZ02ZP

Mark	No.	Description	Part No.
	IC4003		PST3428U
	IC4005		PST3809U
	IC3301		SM5950AM
A	IC3402		SM8707KV
	IC4101		SN74AHC2G53HDCT
	IC3001		TC74LCX541FT
	IC3002		TC74VHC14FT
	IC5341		TC74VHC157FT
	IC1104		TC7SZ126FU
	IC3403,IC4205,IC5322		TC7WHU04FU
	IC3251		UPC4570G2-A
	IC5101		UPD72852AGB-8EU-A
	IC5202		UPD72893BGD-LML
	IC1102		VYW2176
B	IC1	FLASH MEMORY IC	MBM29PL64LM90TN
	IC1201		W986416DH-6
	Q2101-Q2105,Q2201,Q2203,Q23012		SA1576A
	Q2312		2SA1576A
	Q4000		2SC2411K
	Q2202,Q2222		2SC4081
	Q2302,Q2311		DTC114EUA
	Q2402,Q2403		HN1B04FU
	Q3201,Q3202		RN1903
	Q1102		RN4982
	Q2001		UMF21N
C			
	D3001,D3101-D3104		1SS355
	D5321		HVC359
	D5322		HVC362
	D4201		MA2ZV05
	D3002		RB501V-40
	D1111		RB521S-30

COILS AND FILTERS

F3102,F3401-F3403,F4201,F5101		DTF1069
L1001-L1009,L1101,L1102,L1301		DTL1106
L1401,L1402,L3301,L5501-L5505		DTL1106
D L5507,L5508	EMI FILTER	DTL1106
L5301,L5321		LCYA100J2520
L4202		LCYA1R2J2520
F3201	CHIP SOLID INDUCTOR	VTF1096
L2101	CHIP COIL	VTL1067
L4201	CHIP BEADS	VTL1079
L5103-L5106	CHIP BEADS	VTL1082

CAPACITORS

C5311,C5329		CCSRCH100D50
C3253,C3258		CCSRCH101J50
E C4208		CCSRCH240J50
C5105		CCSRCH271J50
C5325,C5327		CCSRCH330J50
C3207		CCSRCH331J50
C5131-C5138		CCSRCH4R0C50
C5326		CCSRCH5R0C50
C3254,C3257		CCSRCH681J50
C5121,C5122		CCSRCH8R0D50
C2208,C2317,C4034,C5322		CEVW100M16
C3251,C3255,C4001,C4002,C4004		CEVW101M16
C4029,C4037		CEVW101M16
F C2101,C2221,C2405,C3201,C3204		CEVW101M6R3
C3206		CEVW101M6R3
C2301		CEVW220M6R3
C1061,C4022		CEVW221M4
C3106		CEVW2R2M50
C5321		CEVW470M16
C2308,C3102,C3107,C4003,C5341		CEVW470M6R3
C5301		CEVW4R7M35
C1031,C1032,C1503-C1506		CKSQYB104K16
C2204,C4206,C5309		CKSQYB105K10
C1901,C4014,C4019,C4033,C5006		CKSQYB225K10
C1004,C1012,C1014,C1029,C1034		CKSRYB102K50
C1040,C1044,C1049,C1051		CKSRYB102K50
C1110,C1111,C1207,C1208,C1307		CKSRYB102K50
C1311,C1313,C1407,C1408		CKSRYB102K50
C1427,C1428,C3303,C3408		CKSRYB102K50
C1003,C1027,C1037,C1052,C1109		CKSRYB103K50
C1206,C1305,C1308,C1310,C1406		CKSRYB103K50
C1425,C2305,C3003,C3004,C4018		CKSRYB103K50
C4020,C4207,C5214,C5222,C5224		CKSRYB103K50
C1508-C1510,C2311,C4104,C5306		CKSRYB104K16
C4103		CKSRYB223K50
C5328		CKSRYB473K25
C2202		CKSRYB563K16
C1002,C1005,C1007-C1010,C1016		CKSRYF104Z25
C1018,C1019,C1021-C1023		CKSRYF104Z25
C1025,C1026,C1028,C1030,C1035		CKSRYF104Z25
C1038,C1041,C1042,C1047,C1102		CKSRYF104Z25
C1105,C1106,C1108,C1114,C1202		CKSRYF104Z25
C1204,C1302,C1304,C1312,C1402		CKSRYF104Z25
C1404,C1422,C1424,C2102-C2106		CKSRYF104Z25
C2201,C2206,C2222,C2223,C2306		CKSRYF104Z25
C2319,C2406,C2407,C3006,C3101		CKSRYF104Z25
C3105,C3108,C3202,C3203,C3205		CKSRYF104Z25
C3252,C3256,C3302,C4006-C4008		CKSRYF104Z25
C4010,C4012,C4013,C4017,C4021		CKSRYF104Z25
C4024-C4026,C4032,C4202,C4203		CKSRYF104Z25
C4209,C5113,C5118,C5120		CKSRYF104Z25
C5125-C5127,C5204,C5215,C5218		CKSRYF104Z25
C5225-C5228,C5230,C5308,C5310		CKSRYF104Z25
C5323,C5342,C5343		CKSRYF104Z25
C1001,C1006,C1048,C1103,C1107		CKSRYF105Z10
C1203,C1205,C1209,C1303,C1306		CKSRYF105Z10
C1309,C1403,C1405,C1409,C1423		CKSRYF105Z10
C1426,C1429,C3001,C3404-C3407		CKSRYF105Z10
C4027,C4030,C4105,C4107,C4201		CKSRYF105Z10
C4401,C4501,C5110		CKSRYF105Z10
C4028		DCH1200
C3402,C3403,C4015		VCG1045
C1054,C1060,C3301 (150/4V)		VCH1234
VC4201 (10pF)		VCM1012

RESISTORS

R1025,R1026,R1042-R1046		RAB4CQ103J
R1048-R1051,R1054,R1068,R1069		RAB4CQ103J
R1072,R1073,R5218-R5221		RAB4CQ103J
R5229,R5230,R5247,R5249-R5252		RAB4CQ103J
R5255,R5258,R5259,R5273-R5275		RAB4CQ103J
R5289,R5290		RAB4CQ103J
R1408-R1411		RAB4CQ220J
R4401,R4404,R4410,R4416,R4417		RAB4CQ223J
R4423,R4502,R4506,R4512		RAB4CQ223J
R4518,R4519,R4525		RAB4CQ223J

Mark No.	Description	Part No.
	R1114-R1117,R4405-R4408,R4436	RAB4CQ330J
	R4507-R4510,R4538	RAB4CQ330J
	R1303-R1310,R1404-R1407	RAB4CQ560J
	R1423-R1426	RAB4CQ560J
	R1203-R1206	RAB4CQ680J
	R3254,R3266	RN1/16SE1002D
	R3253,R3265	RN1/16SE1201D
	R3251,R3269	RN1/16SE2202D
	R5103	RN1/16SE5101D
	R5108	RN1/16SE9101D
	R1207,R1502,R1507,R2017,R3002	RS1/10S0R0J
	R3102,R3201,R3252,R4001,R4006	RS1/10S0R0J
	R4009,R4014,R4016,R4108,R4109	RS1/10S0R0J
	R5209,R5322	RS1/10S0R0J
	R4019	RS1/10S1001D
	R5321	RS1/10S101J
	R1501	RS1/10S2202F
	R4020	RS1/10S5600D
	R1031,R1032,R1034,R4105-R4107	RS1/16S0R0J
	R4201,R5130,R5141-R5144,R5248	RS1/16S0R0J
	R5295,R5328	RS1/16S0R0J
	R4013	RS1/16S1001F
	R4005	RS1/16S101J
	R5272	RS1/16S102J
	R4012	RS1/16S1200F
	R4011	RS1/16S1501F
	R1022	RS1/16S151J
	R1024	RS1/16S181J
	R1021,R1023	RS1/16S2201F
	R3408	RS1/16S220J
	R2105,R2106,R2111,R2112,R2115	RS1/16S3300F
	R4018	RS1/16S3600D
	R5240-R5243,R5296,R5341,R5342	RS1/16S470J
	R5104-R5107	RS1/16S56R0D
	R3026	RS1/16S681J
	Other Resistors	RS1/16SS###J

OTHERS

	CN5102 7P FFC CONNECTOR	VKN1411
	CN1901 7P FFC CONNECTOR	VKN1812
	CN4001 8P FFC CONNECTOR	VKN1813
	CN3001 24P FFC CONNECTOR	VKN1814
	CN2001 32P FFC CONNECTOR	VKN1815
	CN4401,CN4501	VKN1926
	40P FFC CONNECT0R	VKN1926
	KN3 EARTH METAL FITTING	VNF1109
	X4201 CRYSTAL RESONATOR (27.000MHz)	VSS1146
	X5101 CRYSTAL RESONATOR (24.576MHz)	VSS1184
	X4102 VCXO (27MHz)	VSS1195

E ATWB ASSY

OTHERS

	CN709 40P ATA CONECTOR	VKN1816
	CN710 40P FFC CONNECTOR	VKN1879

F ATHB ASSY

Mark No.	Description	Part No.

OTHERS

	CN707 40P ATA CONECTOR	VKN1816
	CN708 40P FFC CONNECTOR	VKN1879

G CONTROL ASSY

SEMICONDUCTORS

⚠	IC901	BA178M05FP
⚠	IC6001	BA178M09FP
	IC8301-IC8303,IC8401,IC8501-IC8506	BA4558F-HT
	IC8652	BA4558F-HT
	IC3901	BD3812F
	IC804	BR24L32F-W
	IC2001	BU4052BCF
	IC8402	BU4066BCF
	IC2002	NJM4558MD
	IC3902	NJM4560M
	IC5501	PDC117B
	IC801	PEG045A
	IC803	PST3245
	IC802	RS5C372A
	IC4601	TC74HC00AF
	IC805	TC74HCT7007AF
	IC5901	TC7WH08FU
	IC950	TC7WU04FU
	Q5901	2SA1037K
	Q3907,Q5624	2SA1576A
⚠	Q5652	2SB1238X
	Q5503	2SB1689
	Q2001-Q2004,Q5501,Q5504	2SC4081
	Q5621-Q5623,Q5653,Q802, Q951	2SC4081
	Q3901-Q3904,Q805, Q808	2SD2114K
	Q2009,Q2010,Q803, Q807, Q950	DTA124EUA
	Q804, Q911	DTC124EUA
	Q952	HN1C01FU
	Q901	RN4903
	Q2005,Q2007,Q8321,Q8404,Q8406	UN5112
	Q5502,Q8405,Q8407	UN5212
	D5653	1SR154-400
	D3903,D5521,D5901-D5905	1SS355
	D802–D804, D8301,D990	1SS355
	D992–D995	1SS355
	D2003,D2005	DAP202K
	D801	RB501V-40
	D5621	UDZS3R0(B)
	D2001,D2002	UDZS6R2(B)
	D3901,D3902	UDZS6R8(B)
	D5502-D5508,D5510-D5513	UDZS8R2(B)

COILS AND FILTERS

	L5651	LCKAW100J2520
	L5501	LFEA220J
	L950	LFEA470J
	L5652	LTA102J
	L5901 CHIP SOLID INDUCTOR	QTL1013
	L4601-L4604 CHIP BEADS	VTL1076
	L801, L951 CHIP BEADS	VTL1081

CAPACITORS

	C5528	ACH1246
	C951	CCSRCH100D50

Mark	No.	Description	Part No.
		C3909,C3910,C5509,C5510,C808	CCSRCH101J50
		C812, C813, C816	CCSRCH101J50
		C806	CCSRCH120J50
A			
		C907, C908	CCSRCH180J50
		C5503,C5504,C958, C959	CCSRCH220J50
		C5651	CCSRCH221J50
		C8301,C8302	CCSRCH331J50
		C3911,C3912,C811, C814, C815	CCSRCH470J50
		C956	CCSRCH561J50
		C8307,C8308	CCSRCH680J50
		C8303,C8304,C8337,C8338,C8357	CCSRCH821J50
		C3924	CEAL100M16
		C2001,C2002,C2009,C2010,C911	CEAL100M50
B		C955	CEAL100M50
		C2007,C2008,C6012	CEAL470M16
		C3903,C3904	CEANP101M16
		C3915-C3918,C8313,C8314	CEAT100M50
		C8341,C8342,C8361,C8362	CEAT100M50
		C8537,C8538,C8651,C8652	CEAT100M50
		C8657,C8658	CEAT100M50
		C4604,C4608,C4611,C4615,C5657	CEAT101M16
		C843	CEAT101M16
		C6010,C8309,C8310	CEAT1R0M50
		C3905,C3906,C3913,C3914	CEAT470M16
C		C3931,C3932	CEAT470M16
		C5655	CEAT471M16
		C5516,C5524,C5527,C817, C835	CEHAZA101M10
		C3901,C3902,C5512,C5909	CKSRYB102K50
		C826–C828	CKSRYB102K50
		C2003-C2006,C4605,C4607,C5502	CKSRYB103K50
		C5505,C5506,C5508,C5525	CKSRYB103K50
		C8311,C8312,C8339,C8340	CKSRYB103K50
		C8359,C8360,C8402,C8403	CKSRYB103K50
		C8407,C8408,C841, C8505-C8512	CKSRYB103K50
		C8517-C8524,C8529-C8536	CKSRYB103K50
D		C8659,C8660,C909, C910	CKSRYB103K50
		C960, C961	CKSRYB103K50
		C3925,C4601,C4602,C4612,C4613	CKSRYB104K25
		C5514,C5521,C5526,C5531	CKSRYB104K25
		C5653,C5654,C5901,C5904,C6007	CKSRYB104K25
		C810, C819–C821, C825	CKSRYB104K25
		C836, C837, C840, C842	CKSRYB104K25
		C905, C906, C950, C952–C954	CKSRYB104K25
		C957	CKSRYB104K25
		C807	CKSRYB105K10
		C802, C809, C822, C829, C830	CKSRYB105K6R3
E		C834	CKSRYB105K6R3
		C8331-C8334,C8351,C8353	CKSRYB152K50
		C8352	CKSRYB332K50
		C4609,C4610	CKSRYB473K25
		C8901-C8906 (47uF/16V)	VCH1241

RESISTORS

	R947, R948	RS1/10S0R0J
	R3901-R3912,R3917-R3922	RS1/10S101J
	R8501,R8502,R8505,R8506	RS1/16S1002F
	R8511,R8512,R8515,R8516	RS1/16S1002F
F	R8521,R8522,R8525,R8526	RS1/16S1002F
	Other Resistors	RS1/16S###J

Mark	No.	Description	Part No.

OTHERS

	CN5503,CN5504 19P CONNECTOR	19R-1.25FJ
	CN5507 7P FFC CONNECTOR	52045-0745
	CN805 9P FFC CONNECTOR	52045-0945
	CN5505 11P FFC CONNECTOR	52045-1145
	CN8904 12P CONNECTOR	AKP7131
	CN5506 16P SOCKET	AKP7195
	CN5501 16P CONNECTOR	B16B-PH-K
	CN5651,CN802	B2B-PH-K
	CONNECTOR POST 2P	B2B-PH-K
	JA4601,JA4603 OPT. LINK IN	GP1FA513RZB
	JA4602 OPT. LINK OUT 12MB/S	GP1FA513TZ
	BT801 LITHIUM BATTERY (CR2032)	VEM1033
	CN5502 15P FFC CONNECTOR	VKN1246
	CN801 24P FFC CONNECTOR	VKN1255
	2501 SCREW PLATE	VNE1948
	KN5501,KN5502	VNF1084
	WRAPPING TERMINAL	VNF1084
	KN801 EARTH METAL FITTING	VNF1109
	JA5901 MINI JACK(4P)	XKN3015
	CN8901 13P PLUG	XKP3066
	CN8902,CN8903 19P PLUG	XKP3069
	CN803, CN804 23P PLUG	XKP3071
	X5502 CERAMIC RESONATOR (10MHz)	ASS7034
	X803 CRYSTAL OSCILLATOR	CSS1599
	X950 CRYSTAL OSCILLATOR (4.433619MHz)	VSS1176
	X5501,X802 CRYSTAL RESONATOR (32kHz)	VSS1197

H DSP ASSY

SEMICONDUCTORS

IC8201	AK4114VQ
IC8401	AK4628VQE
IC8501	DSPD56367PV150
IC8901	NJM2391DL1-33
IC8902	NJU7223DL1-18
IC8701	TC74LVX244FT
IC8702	TC74VHCT244AFT
IC8502	TC7WU04FU
Q8504	UMD2N
Q8503	UN5112
D8501	1SS355
D8401	DAN202K
D8402,D8502,D8503	DAP202K

COILS AND FILTERS

L8002,L8004,L8501,L8502 CHIP SOLID INDUCTOR	ATL7002
L8201,L8203,L8204,L8401,L8402	QTL1013
L8504,L8701,L8702 CHIP SOLID INDUCTOR	QTL1013

CAPACITORS

C8217,C8225,C8408 (100/4V)	ACH7231
C8209,C8210	CCSRCH100D50
C8421	CCSRCH101J50
C8007,C8008,C8201,C8212,C8214	CCSRCH471J50
C8404,C8409-C8414,C8416,C8417	CCSRCH471J50
C8419,C8505,C8507,C8509	CCSRCH471J50

Mark No.	Description	Part No.
	C8511,C8512,C8515,C8518,C8520	CCSRCH471J50
	C8522,C8524,C8526,C8528,C8530	CCSRCH471J50
	C8532,C8534,C8536,C8539,C8541	CCSRCH471J50
	C8543,C8545,C8551,C8703,C8706	CCSRCH471J50
	C8548,C8549	CCSRCH8R0D50
	C8701,C8704	CEVW100M16
	C8406,C8415,C8902,C8904	CEVW101M16
	C8204,C8555	CKSRYB102K50
	C8009,C8405,C8418,C8517,C8554	CKSRYB103K50
	C8010,C8202,C8207,C8213,C8215	CKSRYB104K16
	C8407,C8420,C8422,C8504,C8513	CKSRYB104K16
	C8521,C8523,C8525,C8527,C8529	CKSRYB104K16
	C8531,C8533,C8535,C8537,C8538	CKSRYB104K16
	C8540,C8542,C8544,C8550,C8702	CKSRYB104K16
	C8705,C8901,C8903	CKSRYB104K16
	C8516	CKSRYB105K6R3
	C8514	CKSRYB333K16
	C8203	CKSRYB473K50
	C8546 (150/4V)	VCH1234
	C8547,C8613 (150/4V)	VCH1246
RESISTORS		
	R8506	RAB4C101J
	R8201	RS1/16S1802F
	Other Resistors	RS1/16S###J
OTHERS		
	8101 SCREW PLATE	VNE1948
	CN8003 13P SOCKET	XKP3077
	CN8007,CN8011 19P SOCKET	XKP3080
	X8501 CRYSTAL RESONATOR (20MHZ)	VSS1171
	X8201 CRYSTAL RESONATOR (24.576MHz)	XSS3003

I REG ASSY

SEMICONDUCTORS		
	IC152	BA05FP
	IC156	BA178M05FP
	IC154, IC155	BA178M09FP
	IC151	NJM78M56FA
	IC153	PQ1K333M2ZP
	Q152	2SB1237X
	Q155, Q156	2SC2411K
	Q153	UMF21N
	Q158	UN5112
	Q151, Q157	UN5212
	D151	1SR154-400
CAPACITORS		
	C154, C158, C171, C181, C185	CEAT100M50
	C166, C167, C175–C177	CEAT101M16
	C153, C157, C170, C180, C184	CEAT1R0M50
	C187	CEAT221M16
	C162	CEAT470M50
	C159–C161, C163–C165	CKSRYB104K25
	C172–C174	CKSRYB104K25
RESISTORS		
	All Resistors	RS1/16S###J

Mark No.	Description	Part No.
OTHERS		
	CN151 21P FFC CONNECTOR	52045-2145
	CN153 CONNECTOR 10P	B10B-PH-K
	CN152 CONNECTOR 16P	B16B-PH-K
	CN154 CONNECTOR 4P	B4B-PH-K
	PCB BINDER	VEF1040
	KN101 WRAPPING TERMINAL	VNF1084

J DISPLAY ASSY

SEMICONDUCTORS		
	IC5801	PT6302LQ-003
	Q5801,Q5851,Q5854	2SC4081
	D5851	UDZS3R9(B)
COILS AND FILTERS		
	L5802	LFEA100J
	L5801	LFEA220J
CAPACITORS		
	C5805-C5807	CCSRCH221J50
	C5811	CCSRCH470J50
	C5820	CEJQ101M6R3
	C5822,C5823	CEJQ1R0M50
	C5821	CEJQ220M35
	C5808	CKSRYB102K50
	C5801-C5804,C5810	CKSRYB223K50
	C5809	CKSRYB224K10
RESISTORS		
	All Resistors	RS1/16S###J
OTHERS		
	CN5851 3P FFC CONNECTOR	52045-0345
	V5801 FL TUBE	AAV7103
	JA5001 DV-TERMINAL	VKB1207
	CN5001 7P FFC CONNECTOR	VKN1238
	CN5801 9P FFC CONNECTOR	VKN1269
	CN5802 15P FFC CONNECTOR	VKN1275
	KN5851 WRAPPING TERMINAL	VNF1084
	5802 FL HOLDER	VNF1122

K LED ASSY

SEMICONDUCTORS		
	D5861	SLR-343BBT
CAPACITORS		
	C5861	CKSRYB103K50
OTHERS		
	CN5861 3P FFC CONNECTOR	52045-0345

L TRADE ASSY

OTHERS		
	CN806–CN809 23P SOCKET	XKP3082

M FRONT JACK ASSY

CAPACITORS		
	C5207,C5208,C5825,C5826	CCSRCH471J50

Mark	No.	Description	Part No.
	C5201		CKSRYB103K50
	C5304		CKSRYB104K25
	C5301,C5302		CKSRYB223K50

RESISTORS

	R5201-R5203	RS1/16S75R0F
	Other Resistors	RS1/16S###J

OTHERS

	CN5201 17P FFC CONNECTOR	52044-1745
	JA5301 MINITURE JACK	AKN7005
	JA5201 YC CONNECTOR(VERTICAL)	VKB1190
	JA5202 3PIN JACK(VERTICAL)	VKB1206
	KN5201,KN5301 WRAPPING TERMINAL	VNF1084

N IR ASSY

CAPACITORS

	C5152	CEJQ470M16
	C5151	CKSRYB223K50

RESISTORS

	All Resistors	RS1/16S###J

OTHERS

	5105 3P CABLE HOLDER	51048-0300
	5151 REMOTE RECEIVER UNIT	SPS-442-E1

O KEY L ASSY

SWITCHES AND RELAYS

	S5107-S5111	VSG1024

RESISTORS

	All Resistors	RS1/16S###J

OTHERS

	5104 3P CABLE HOLDER	51048-0300
	5103 8P CABLE HOLDER	51048-0800
	CN5105 CONNECTOR 4P	B4B-PH-K
	J5202 JUMPER WIRE	D20PYY0305E

P KEY R ASSY

SWITCHES AND RELAYS

	S5101-S5106	VSG1024

RESISTORS

	All Resistors	RS1/16S###J

OTHERS

	5102 8P CABLE HOLDER	51048-0800
	J5201 JUMPER WIRE	D20PYY0840E
	CN5101 9P CONNECTOR	VKN1240

Q POWER SUPPLY UNIT

SEMICONDUCTORS

OTHERS

Mark	No.	Description	Part No.
⚠	IC402	FUSE 1.5A/125V	AEK7011
⚠	IC802	FUSE 3.5A/125V	AEK7017
⚠	IC501, IC603, IC951	FUSE 1.25A/125V	AEK7048
⚠	IC702	FUSE 2.5A/125V	AEK7049
⚠	IC604	FUSE 0.75A/125V	AEK7062
⚠	D302		1SS133
⚠	D451, D501		D1NL20U
⚠	D550		MTZJ15(B)
⚠	D350		MTZJ39(B)
⚠	D750		MTZJ4R3(B)

6. ADJUSTMENT

6.1 TV MODULE ADJUSTMENT

∗ It is not necessary to adjust the ASSY normaly when exchanging the ASSY. But the adjustment is necessary when exchanging the Front End (U301) and IC302 VIF/SIF IC.

No.	Adjustment Name	Adj. Point	Measurement Point	Adjustment Value	Adjustment State
1	VCO freerun frequency (AFC voltage) adjustment	L315	The solder land named "AFT"	1.90V ± 0.20V Note1	Terrestrial tuner input /through output. Any channel, RF Input ≥ 60dBu System = B/G, I or D/K AFT = OFF Note1
2	AGC start point adjustment	VR300	The solder land named "AGC"	3.80V ± 0.20V	Terrestrial tuner input Ch = E9(203.25MHz), Video= Blackburst RF Input = 60.0 ± 1.0dBu System = B/G, I or D/K

Note 1 : The adjustment spec. is defined without the thermal drift after the power on.
Therefore, start the adjustment at least 10 minutes after the power on.

A TV MODULE ASSY **SIDE A**

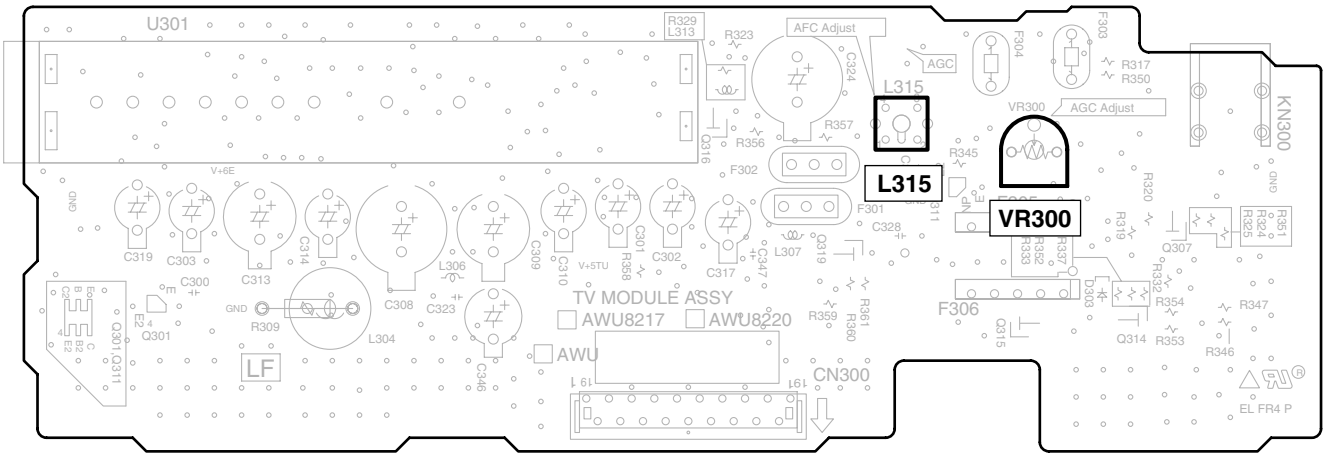


Fig.1 Adjustment Points (TV MODULE ASSY)

A TV MODULE ASSY **SIDE B**

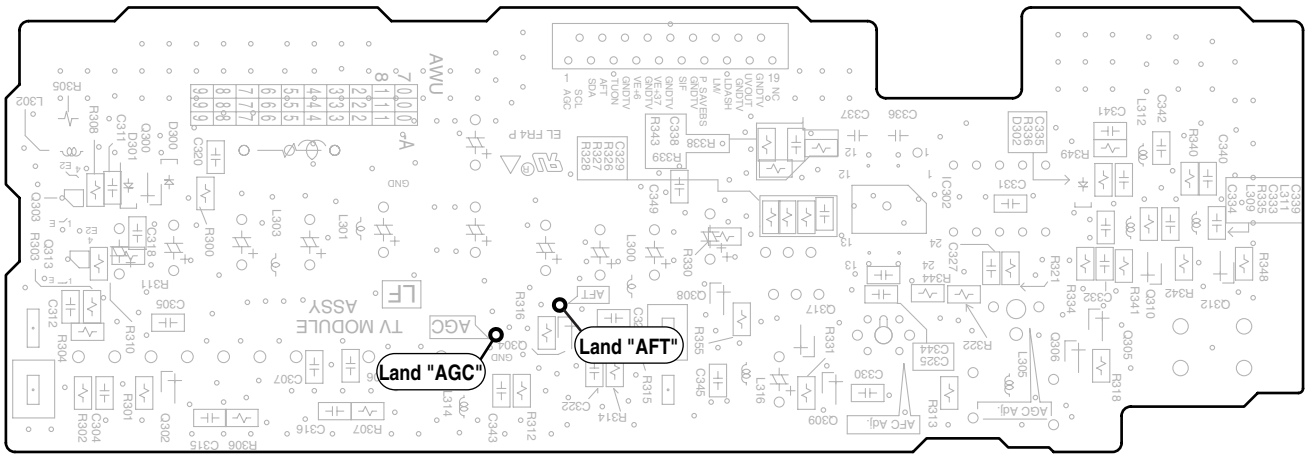


Fig.2 Measurement Points (TV MODULE ASSY)

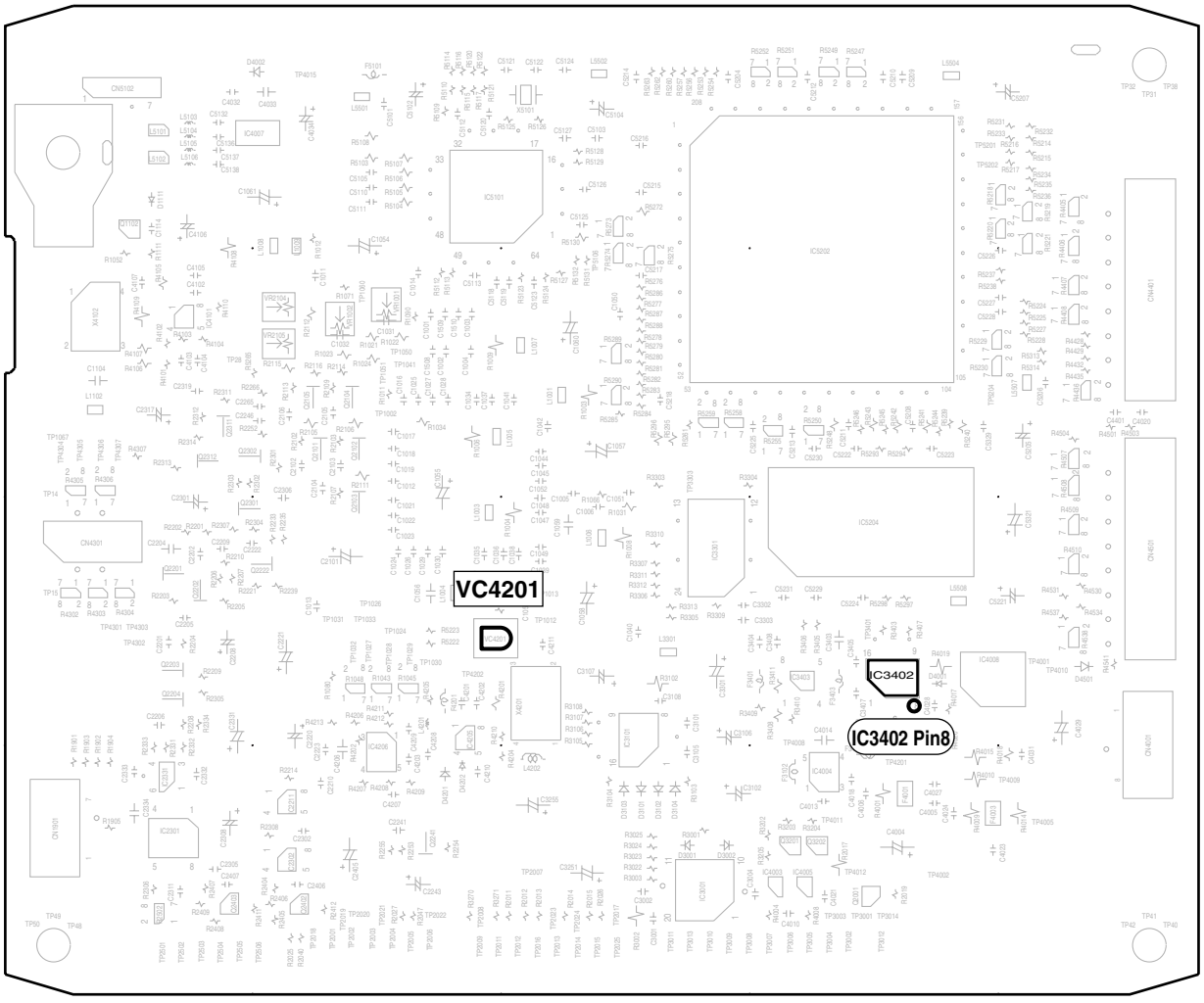
6.2 MAIN ASSY ADJUSTMENT

∗ It is not necessary to adjust the ASSY normaly when exchanging the ASSY, but confirm the data.

No.	Adjustment Name	Adj. Point	Measurement Point	Adjustment Value	Adjustment State
1	Master clock free-running adjustment (Clock system adjustment)	VC4201	MAIN ASSY IC3402 Pin8 (XTO) (SM8707KV)	27.000000MHZ ± 130Hz	No signal input

D MAIN ASSY

SIDE A



7. GENERAL INFORMATION

7.1 DIAGNOSIS

Item	Type	When to perform?	Tools to be used
7.1.1 Model setting	Setting	• After the MAIN Assy and/or CONTROL Assy are(is) replaced	Remote control unit for servicing (GGF1381)
7.1.2 Firmware downloading method	Setting	• After model setting • When NG is displayed for the version information in Service mode	Remote control unit for servicing, disc for downloading, PC, RS-232C cable, special tool for RS-232C interface (GGF1348), and 7-pin FFC (VDA1681)
7.1.3 CPRM ID number and data setting	Setting	• When "CPRM ERR" is displayed on the display section • After the MAIN Assy, CONTROL Assy, or HDD is replaced	Remote control unit supplied with the unit, remote control unit for servicing, and ID data disc (GGV1179)
7.1.4 Video Adjustment for Specific Area	Setting	• When a flicker such as out of H sync or V sync appears on the tuner display	Remote control unit for servicing
7.1.5 Service mode	Diagnosis	• When the version number of each u-com is to be confirmed • To roughly check the status of the HDD • To check the errors that were generated in the past in a case where such errors are difficult to reproduce • When any failure occurs while a DV device is connected	Remote control unit for servicing, aluminum-coated test disc (GGV1025), and DVD-RW (commercially available)
7.1.6 Error rate measuring	Diagnosis	• To check if the DVR drive is in failure or not • To check if the disc used is in failure or not	Remote control unit for servicing
7.1.7 Aging mode	Diagnosis	• When a claimed symptom is difficult to reproduce	Remote control unit for servicing and DVD-R/RW (commercially available)
7.1.8 Diagnosis method of the HDD	Diagnosis	• To check if the hard disc drive (HDD) is in failure or not	Remote control unit for servicing
7.1.9 Service mode for Amplifier in Subwoofer	Diagnosis	• The VOLUME operations can be performed without the subwoofer. • To ignore whether protection mode is activated • To detect that the protection circuit had been activated	None
7.1.10 DSP Test mode	Diagnosis	• To check the errors of DSP circuit	Remote control unit supplied with the unit (AXD7401)
7.1.11 Troubleshooting for DSP	Diagnosis	• To check the trouble of DSP assy	None
7.1.12 Setup sequence	Diagnosis	• When any failure occurs during initialization that takes place immediately after the power is turned on	None

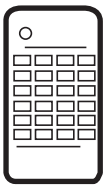
7.1.1 MODEL SETTING

[Purposes]

When the MAIN Assy and/or CONTROL Assy that are(is) commonly used with another model are(is) replaced, they (it) must recognize as the appropriate model of this unit.

Items to be set: The model number, destination, and region No. must be set.

[Tool to be used]



Remote control unit for servicing (GGF1381)

[Notes]
- Once the setting has been made, it can never be changed. Be sure to make the setting correctly.
- After this setting, all customers setting data is eliminated, it is recommended that you obtain the customer's consent beforehand.

[Procedures] For WL type

① After power on, the following screen is displayed on TV monitor. Press " 42 " by using the remote control unit for service.

```
[ Recorder 's  Model  Setting]
  Input the number by using the remote for Service.

  > --

  Input  No.        Model
  [     42        :  DVR-520H          ]
  [     44        :  DVR-720H          ]
```

② After ①, the following screen is displayed on TV monitor. Press " 053 " by using the remote control unit for service.

```
[ Recorder 's  Type  Setting]
  Input the number by using the remote for Service.

  > ---                  (Type  --  ,  Region  No.  -)

  Input  No.        Type
  [     05        :  RLT      <Singapore>       ]
  [     06        :  YPW      <Australia>       ]
```

③ Disconnect then reconnect the AC power cord of the unit. Be careful not to impart vibration to the unit immediately after the AC power cord is disconnected.

④ Reset the recorder to all its factory settings.
(Make sure that the recorder is on. Press and hold ■ (STOP) key and press ⏻ (STANDBY/ON) key on the front panel.)
The recorder turns off with all settings reset.

⑤ Press [ESC] then [DISP] keys by using the remote control unit for servicing, and then confirm the Model Name " DVR-520H/RLT ".

```
DVR-520H/RLT
  VERSION   : 4.＊＊
  SYSCON    : RELEASE_131
              Rev     :1.5036              $
  TUFLCON   : 7.＊＊    MASK                  OK
     DRIVE  : DVD-RW DVR-107X                OK
              1.13W                          OK
              CKT0000353WL                   OK

       HDD  : ST380012ACE                    80
    DEVICE  : PRISM-PLUS
    REGION  : 3
         C  : ＊＊＊＊＊＊＊＊＊
   FLASH    : 64M
```

* XV-DVR9H is displayed as " DVR-520H/(Destination) ".
* TUFLCON for XV-DVR9H/WL is displayed as " 7.xx ".

⑥ End

[Procedures] For YPW type

① After power on, the following screen is displayed on TV monitor. Press " 42 " by using the remote control unit for service.

```
[ Recorder 's  Model  Setting]
  Input the number by using the remote for Service.

  > --

  Input  No.        Model
  [    42      :  DVR-520H        ]
  [    44      :  DVR-720H        ]
```

② After ①, the following screen is displayed on TV monitor. Press " 064 " by using the remote control unit for service.

```
[ Recorder 's  Type  Setting]
  Input the number by using the remote for Service.

  > ---                (Type  --  ,  Region  No.  -)

  Input  No.        Type
  [    05      :  RLT     <Singapore>      ]
  [    06      :  YPW     <Australia>      ]
```

③ Disconnect then reconnect the AC power cord of the unit. Be careful not to impart vibration to the unit immediately after the AC power cord is disconnected.

④ Reset the recorder to all its factory settings.
(Make sure that the recorder is on. Press and hold ■ (STOP) key and press ⏻ (STANDBY/ON) key on the front panel.)
The recorder turns off with all settings reset.

⑤ Press [ESC] then [DISP] keys by using the remote control unit for servicing, and then confirm the Model Name " DVR-520H/YPW ".

```
DVR-520H/YPW
  VERSION   : 4.＊＊
  SYSCON    : RELEASE_131
              Rev     :1.5036          $
  TUFLCON   : 7.＊＊   MASK              OK
     DRIVE  : DVD-RW DVR-107X           OK
              1.13W                     OK
              CKT0000353WL              OK

       HDD  : ST380012ACE               80
    DEVICE  : PRISM-PLUS
    REGION  : 4
         C  : ＊＊＊＊＊＊＊＊＊
   FLASH    : 64M
```

* XV-DVR9H is displayed as " DVR-520H/(Destination) ".
* TUFLCON for XV-DVR9H/YPW is displayed as " 7.xx ".

⑥ End

7.1.2 FIRMWARE DOWNLOADING METHOD

[Purposes]

1. When the main assy and the control assy are replaced, the firmware versions for the system control IC, drive and the TUFL u-com do not match, and operations of the unit may be destabilized.
   To match the versions for the above three, firmware downloading is necessary in the following two cases:
   ① After the model setting
   ② When NG is displayed on the first screen (version information, etc.) of Service mode
2. Rewriting the firmware to the latest version may ameliorate the symptoms claimed by the customer.

There are the following two methods for downloading: disc download and serial download.

1. DISC DOWNLOAD

[Tools to be used]

Remote control unit for servicing (GGF1381)

Download DISC (GGV1179)

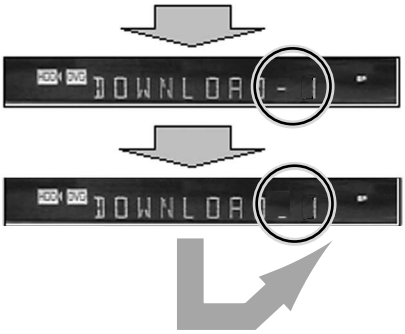
[Notes]

Be sure NOT to turn off the unit during downloading.
If the unit is turned off during downloading, the SYSCON, TUFLCON and DRIVE programs may not be properly rewritten, in which case the unit may not be able to turn on again.

[Procedure] ① Open a disc tray by pressing the "OPEN/CLOSE" button.
② Put the download disc on the tray. Press a " VOLME – " button while pressing a " HDD/DVD " button on the front panel.
* The disc tray closes automatically and the disc is loaded.
* The disc tray opens automatically after loading.

FL display

③ Take out the Download Disc.



* " down loading*** " is displayed on the monitor screen.
* After download is completed, the power turns off, and turns on and a disc tray closes automatically.
* It takes for about 7-8 minutes until download is completed.

④ Press and hold a " ESC " button, then press " DISP " button on the remote control unit for servicing.
⑤ Confirm a firmware release version.
⑥ Press " ESC " button on the remote control unit for servicing in order to exit the test mode.

[Tips]

If the power is not correctly turned on or when the power is shut off during downloading, proceed as follows before performing download again:

- In a case where downloading was incorrectly terminated while "DOWNLOAD-1" was displayed on the FL display:
  The SYSCON program will not function correctly.
  If the program cannot be downloaded from the disc or through serial communication, replace the FLASH ROM (IC1102 : MAIN ASSY).

- In a case where downloading was incorrectly terminated while "DOWNLOAD-2" was displayed on the FL display:
  The DRIVE program will not function correctly.
  If the program cannot be downloaded from the disc or through serial communication, replace the DRIVE Assy.

- In a case where downloading was incorrectly terminated while "DOWNLOAD-3" was displayed on the FL display (only for the flash-type TUFLCON microcomputer):
  The program for the tuner microcomputer will not function correctly.
  If the program cannot be downloaded from the disc or through serial communication, replace the TUFLCON microcomputer (IC801 : CONTROL ASSY).

2. SERIAL DOWNLOAD

[Purposes]

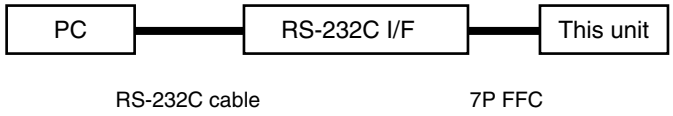
1. When the main assy and the control assy are replaced, the firmware versions for the system control u-com, drive, and the TUFL u-com do not match, and operations of the unit may be destabilized. In such a case, the versions for the above three must be matched.
2. This method is used when disc downloading fails.

[Tools to be used]

* PC with serial port
* RS-232C straight cable
* RS-232C I/F jig (GGF1348)
* 7P FFC (VDA1681)
* Download program (UFU.exe)
* Firmware

[Connection]

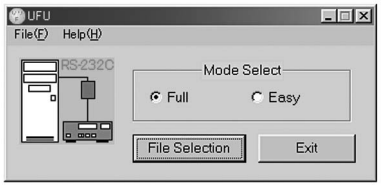
Connect as follows:



[Procedures]

① Connect the 232C I/F jigs above way.

② Turn on the PC and start the " UFU.exe ".

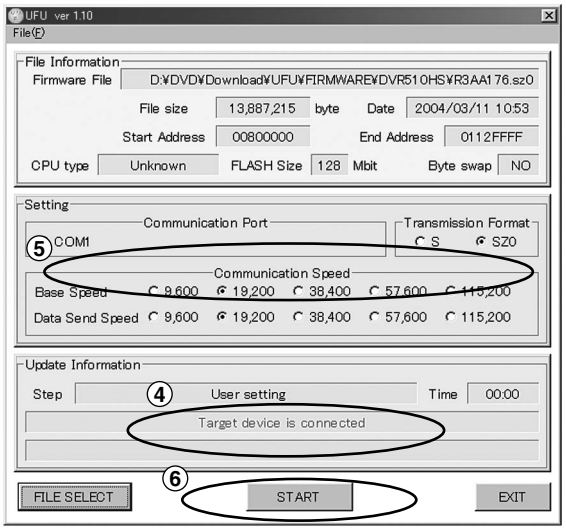


③ Select the Firmware file. ("sz0" file)

④ Turn the DVD recorder on and start the download program.
" Target Device is connected " is appeared on the screen.

⑤ Select the Communication Speed (Baud Rate)
a) Base Speed 38,400
b) Data Send Speed 115,200

⑥ START
- Even if you click "START" button, sometimes "Communication Error" may come out one to twice, and download may fail.
  In this case, please click "START" again.
- Other factors can be considerd if download fails 3 times or more.
- And it takes about an hour for updating the firmware.



7.1.3 CPRM ID NUMBER AND DATA SETTING

[Purposes]

For the DVD recorder,it is necessary with the recoding/playback of DVD–RW disc to set an individual number (ID number) and ID data to each recorder. If the number and data are not set correctly with the following procedure, cannot work with HDD remain volume (0:00) or operations in the future may not be guaranteed with RW disc. You will find the ID number to be attached on the ID label on the rear panel.

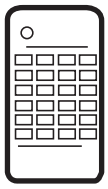
Important: If no ID label is found on the rear panel, write down the specified ID number by checking it according to "How to confirm the ID number" shown below.

The Input is Necessary When:

- " CPRM ERR" is displayed on the FL display after the power is turned on or in Stop mode.
- When the MAIN ASSY , DRIVE ASSY or the HDD is exchanged.

[Tools to be used]

Remote control unit supplied with the unit (AXD7401)



Remote control unit for servicing (GGF1381)

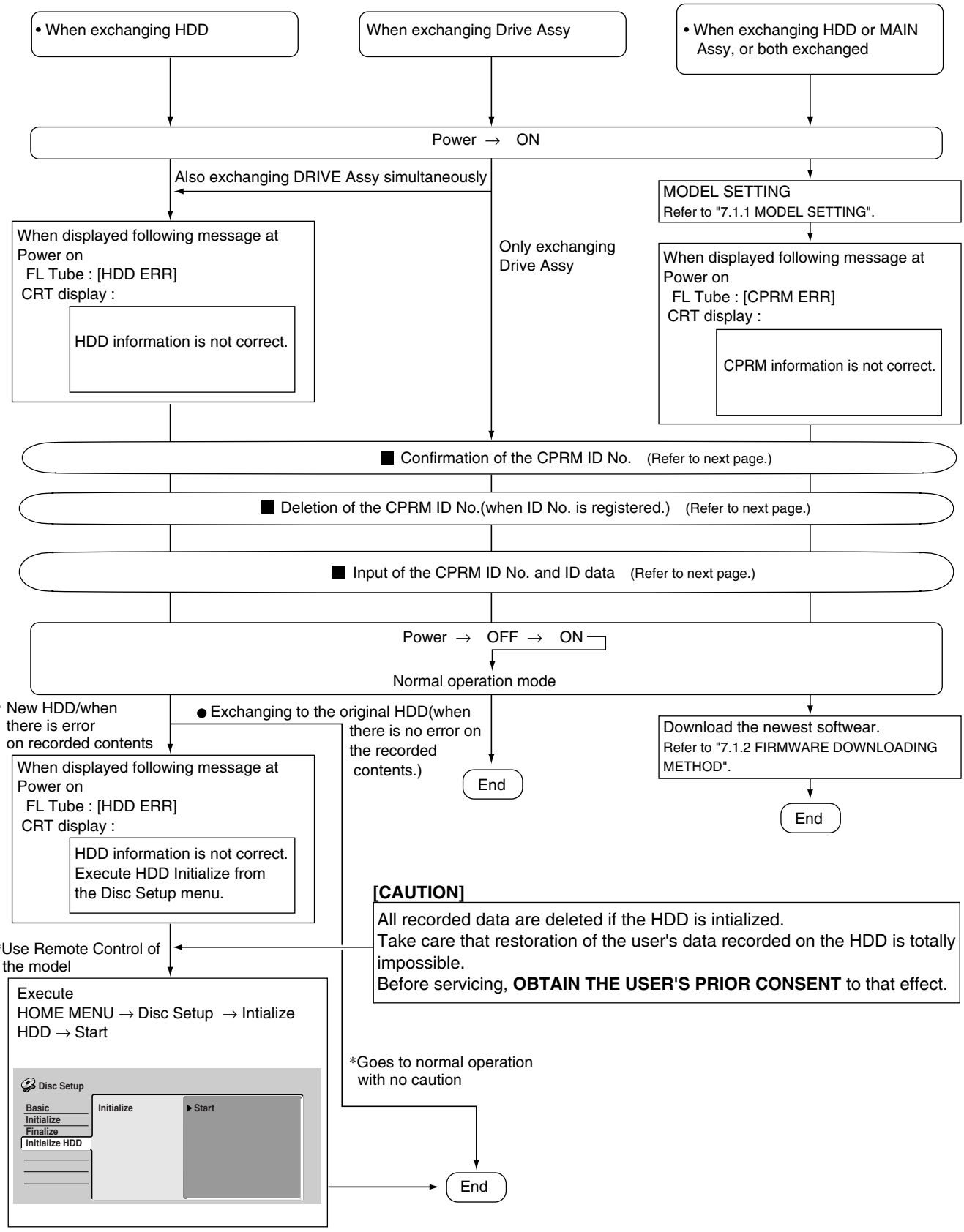
DVD Recorder Data Disc (GGV1179)

[Notes]

Important: If no ID label is found on the rear panel, write down the specified ID number by checking it according to "How to confirm the ID number" shown below before this setting.

- Input the ID number while the unit is in Stop mode.
- After the data are read from the ID data disc (GGV1179), the disc will automatically be unloaded.

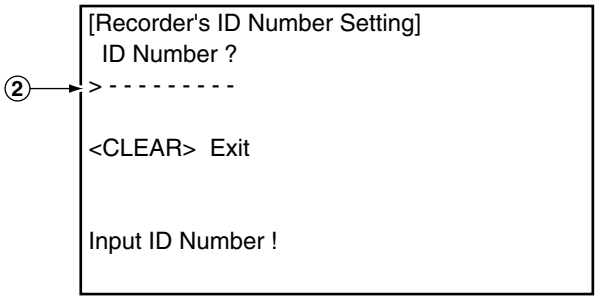
■ Input Flow of the ID No. and ID data when exchanging HDD, MAIN Assy or Drive Assy


• When exchanging HDD
When exchanging Drive Assy
• When exchanging HDD or MAIN Assy, or both exchanged
Power → ON
Also exchanging DRIVE Assy simultaneously
MODEL SETTING
Refer to "7.1.1 MODEL SETTING".
When displayed following message at Power on
FL Tube : [HDD ERR]
CRT display :
HDD information is not correct.
Only exchanging Drive Assy
When displayed following message at Power on
FL Tube : [CPRM ERR]
CRT display :
CPRM information is not correct.
■ Confirmation of the CPRM ID No. (Refer to next page.)
■ Deletion of the CPRM ID No.(when ID No. is registered.) (Refer to next page.)
■ Input of the CPRM ID No. and ID data (Refer to next page.)
Power → OFF → ON
Normal operation mode
● New HDD/when there is error on recorded contents
● Exchanging to the original HDD(when there is no error on the recorded contents.)
End
Download the newest softwear.
Refer to "7.1.2 FIRMWARE DOWNLOADING METHOD".
End
When displayed following message at Power on
FL Tube : [HDD ERR]
CRT display :
HDD information is not correct.
Execute HOME MENU → Disc Setup → Intialize HDD → Start
[CAUTION]
All recorded data are deleted if the HDD is intialized.
Take care that restoration of the user's data recorded on the HDD is totally impossible.
Before servicing, OBTAIN THE USER'S PRIOR CONSENT to that effect.
*Use Remote Control of the model
*Goes to normal operation with no caution
Disc Setup
Basic
Initialize
Finalize
Initialize HDD
Initialize
Start
End

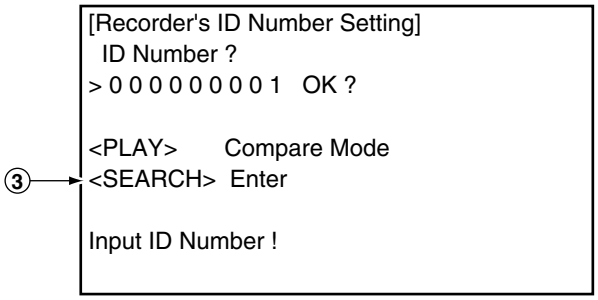
How to Input the ID Number and ID Data

① To enter the input mode, press ESC + STEREO keys sequentially in a status with no ID number set, such as after FLASH-ROM downloading.

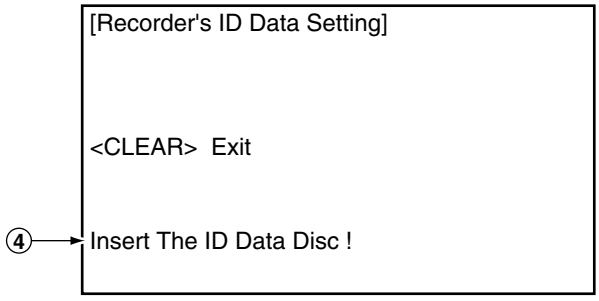
② As number input is enabled when the unit enters the input mode, input the 9-digit ID number.
(The entered number is also displayed on the FL display.)



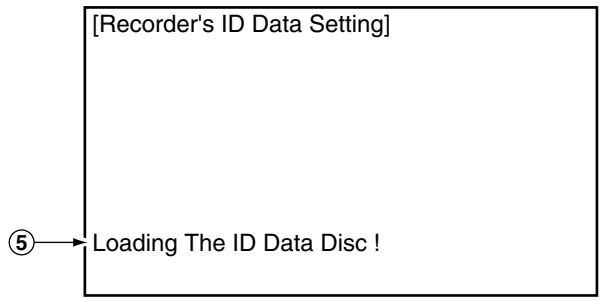
③ After inputting the number, press SEARCH keys to register the ID number.



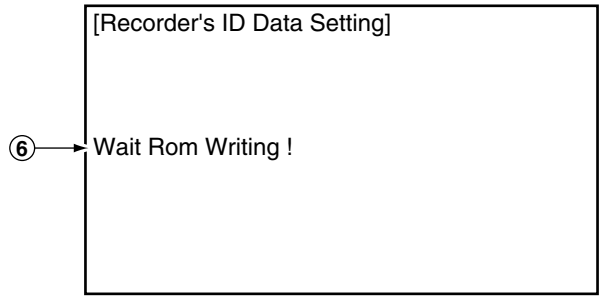
④ When the ID number has been registered, the unit enters the ID data input mode. (The FL display indicates "INSERT ID.")
In this condition, place the ID data disc on the tray and close the tray using the CLOSE key "■/⏏" on the player.



⑤ While the data are being read, the message shown in the figure at left is displayed on the screen.
(The FL display indicates "LOAD ID.")

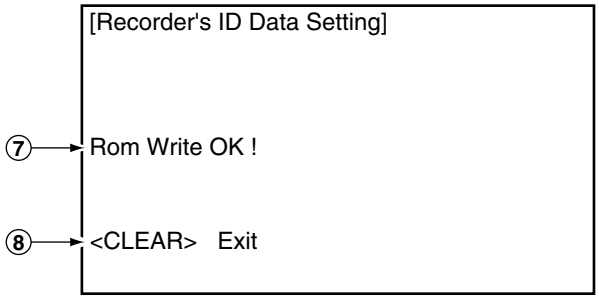


⑥ When the ID data have been read, the data are written to the FLASH-ROM.
(The FL display indicates "WRITE ID.")



⑦ When the ID data have been written to the FLASH-ROM, the message "Rom Write OK" is displayed on the screen.
(The FL display indicates "ID DATA OK.")

⑧ After confirming this message, press CLEAR key to exit the input mode.

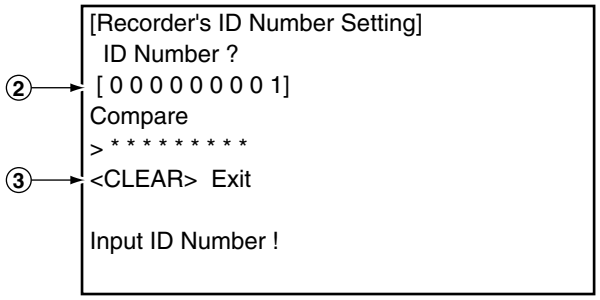


[How to Confirm the ID Number]

① Press ESC + STEREO keys sequentially with an ID number already set, and the unit enters the ID number confirmation mode.

② The set ID number is displayed on the screen (and on the FL display), permitting you to confirm it.

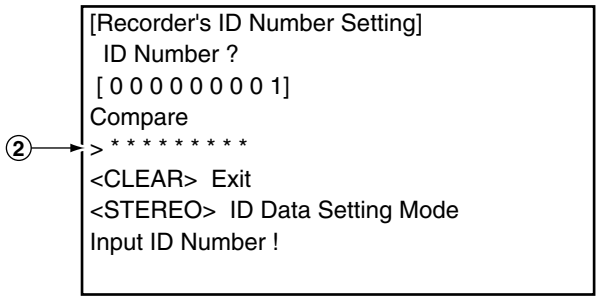
③ To exit this mode, press CLEAR key.



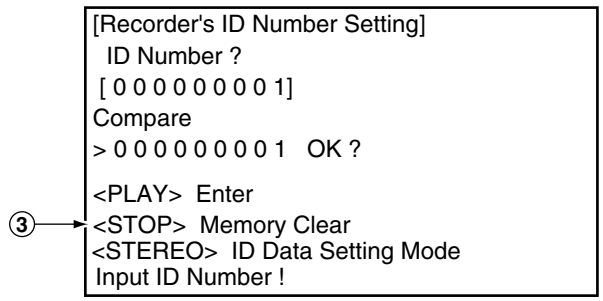
[How to Clear the ID Number]

① Press ESC + STEREO keys sequentially with an ID number already set, and the unit enters the ID number confirmation mode.

② Input the same number as the ID number you have set.



③ After inputting the number, press STOP key.
Only when the entered number matches the set ID number, the ID number is cleared and the unit exits this mode.
If the numbers do not match, you must return to step ②.
(STOP key is not accepted until 9 digits are entered.)



7.1.4 VIDEO ADJUSTMENT FOR SPECIFIC AREA

[Purposes]

Depending on the area, if a flicker may appear in a picture received by the tuner, it can be corrected or reduced with this setting.

[Tools to be used]

Remote control unit supplied with the unit (AXD7401)

Remote control unit for servicing (GGF1381)

1. Specific-Channel Setting mode

In this mode, specific settings can be made for up to 12 channels.
For channels that do not have specific settings, the settings of General Setting mode are applied.

[How to enter this mode]

① Select a channel or line input (L1-L3) on which a specific setting is to be made.
② Press the ESC then CHP/TIM keys on the remote control unit for servicing. "General Setting mode" is displayed.
③ Press the DIG/ANA key in General Setting mode. Specific-Channel Setting mode is entered.

[How to exit] Press the ESC key on the remote control unit for servicing to return the Normal mode.

[Note] Setting is in effect only during recording/playback stop.

[Setting examples]

The setting examples in Specific-Channel Setting mode are shown below.
For details on each setting item, see "Table 1: Key operations in Specific-Area Setting mode."

(A picture from the tuner can be viewed using the semitransparent OSD display.)

```
AVIO Specific Area Mode
  Input - [ TUNER ]
  Sync AGC         : ON                *
  Threshold        : Pedestal Level
  Threshold Level  : 1
 Individual setting state
Input Channel - [    1CH]
 Sync AGC          : ---
 Threshold         : -----
 Threshold Level   : --h
```

→ General Setting data

→ Specific Channel Setting data

* : setting is the default.

[Tips]

- If a channel that does not have specific settings is displayed, the setting figures are displayed as hyphens (- -).
- If the setting figures are not displayed as hyphens, those settings have been specifically set even if they are identical to the default settings or those of General Setting mode.
- The setting indicated with an asterisk (*) is the default.
- The channels to be indicated for "Input Channel" are as shown below:
  Line inputs: L1-L3, DV (DV is not valid for specific-area settings.)
  Tuner channels: Channels received by the tuner (channels to be set in Specific-Channel Setting mode, etc.)

Table 1 : Key operations in Specific Channel Setting mode

(effective only during recording/playback stop)

Key	Operation	Setting (∗: Default)	Remarks
DIG/ANA	General Setting mode and Specific Channel Setting mode are alternately selected.	–	–
INPUT SELECT, CHANNEL +/– (∗R)	Each time the Input Selector or channel is changed, the general setting data and specific channel setting data on the display are changed.	–	On the display of General Setting mode, only the selected input, i.e., TUNER or LINE is changed.
[Rev ×3], [×3 Fwd] (∗1)	Sync AGC setting for an individual channel is performed.	ON (∗) / OFF	–
[Rev CHAPTER SKIP] [CHAPTER SKIP Fwd] (∗1)	The Threshold type can be selected.	(∗) Normal Auto Threshold Level Manual Threshold Level Pedestal Level	When the Threshold type is changed, the corresponding Threshold Level is displayed.
[Rev SCAN], [SCAN Fwd], [Rev STILL STEP], [STILL STEP Fwd] (∗1)	The Threshold Level can be set.	According to the selected Threshold type, the value can be changed in the range shown below:	–
		• In a case of Normal: The level is fixed, with no indication of its level.	–
		• In a case of Auto Threshold Level: 0-8 (Default: 0)	◄II STILL STEP: Each time this key is pressed, the number decreases one by one in the range of 0-8, cyclically. STILL STEP II►: Each time this key is pressed, the number increases one by one in the range of 0-8, cyclically.
		• In a case of Manual Threshold Level: 0-8 (Default: 0)	
		• In a case of Pedestal Level: 0-8 (Default: 0)	
PLAY (∗1)	All channels that have individual setting data will be canceled, and the individual data that have been stored in nonvolatile memory will be reset to default.	–	All data stored in nonvolatile memory shown in ① to ④ of Table 4 will be initialized. The General Setting data will not be changed (will be retained).
CLEAR (∗1)	If the currently selected channel has its individual setting, that setting will be canceled. By canceling the individual setting for that channel, the number of remaining channels that can have individual settings will be increased by one.	–	All the individual channel setting data for the currently selected channel are reset to the initial values. The General Setting data will not be changed (will be retained).
PAUSE (∗1)	The specific-channel-setting data for the currently selected channel are reset to default.	–	The General Setting data will not be changed (will be retained).
ESC	To quit the AVIO setting mode for specific-area setting and clear the On-Screen Display (the screen will return to that for the tuner)	–	–

∗R : Refers to keys on the remote control unit supplied with this unit. The keys without "R" refer to the remote control unit for service.

∗1 : If a setting value is changed, that is immediately reflected, and the data are written to nonvolatile memory.

[Tips]

- **Indication when the maximum number (12) of channels have individual settings**

  When 12 channels have individual settings, and if a channel that has individual settings is currently selected [see Fig.(a)], the settin data for that channel are displayed on the screen, and they can be changed. When a channel that does not have individual settings is currently selected, the indication will be as shown in Fig.(b), and the setting data cannot be changed. (If you wish to set individual data items for the currently selected channel, you must clear any specific-channel settings for one or more channels.)

(a)

[When 12 channels have individual settings, and if a channel that has individual settings is currently selected]

```
AVIO Specific Area Mode
  Input - [ TUNER ]
  Sync AGC          : ON                        *
  Threshold         : Manual Threshold Level
  Threshold Level   : 2
Individual setting state
Input Channel - [    1CH ]
  Sync AGC          : ON                         *
  Threshold         : Manual Threshold Level
  Threshold Level   : 3
```

(b)

[When 12 channels have individual settings, and if a channel that does not have individual settings is currently selected]

```
AVIO Specific Area Mode
  Input - [ TUNER ]
  Sync AGC          : ON                        *
  Threshold         : Manual Threshold Level
  Threshold Level   : 3
Individual setting state
  Sorry !
  You can store only 12 channels
  for Specific Area mode.
```

2. General Setting mode

[How to enter this mode]

- To shift from Specific-Channel Setting mode:
  Each time the DIG/ANA key is pressed, Specific-Channel Setting mode and General Setting mode are alternately selected.

- To shift from Normal mode (recording/playback stop):
  Press the ESC then CHP/TIM keys.

[How to exit] Press the ESC key to return the normal mode.

[Setting examples]

Show setting example on the General Setting mode screen to the following.
Regarding setting of actual each item, refer to table 3 (key operations in specific-area setting mode).

[General Setting mode]
(A picture from the tuner can be viewed using the semitransparent OSD display.)

```
AVIO Specific Area Mode   Ver *.**
  Input - [ TUNER ]
  Sync AGC    :ON                    *
  Threshold   :Normal                *
  V-Sync Det  :Normal                *
  Std Det     :Normal                *
  HD Err Det  :Normal                *
```

*: setting is the default.

[Display in General Setting mode when the channel currently displayed has specific settings]

```
AVIO Specific Area Mode   Ver*.**
  Input - [ TUNER ]
  Sync AGC    :ON                    *
  Threshold   :Normal                *
  V-Sync Det : Normal                *
  Std Det    : Normal                *
  HD Err Det : Normal                *
  This channel is set up
  individually.
```

[Tips]

- General Setting mode can be entered only during recording/playback stop.
- The currently selected input mode (TUNER or LINE) is displayed for "Input."
- If L1, L2, L3, or DV is selected for input, general settings for the line input can be made (DV is not valid for specific-area settings), and if TUNER is selected, general settings for the tuner input can be made.

Table 3 : Key operations in General Setting mode (effective only during recording/playback stop)

Key	Operation	Setting (∗: Default)	Remarks
INPUT SELECT, CHANNEL +/– (∗R)	Switches inputs or channels.	TUNER / LINE	–
[SIDE A], [SIDE B] (∗3)	Sets Sync AGC.	ON (∗) / OFF	–
[Rev ×3], [×3 Fwd] (∗3)	Sets Threshold level.	(∗) Normal Auto Threshold Level Manual Threshold Level Pedestal Level	–
[Rev CHAPTER SKIP] [CHAPTER SKIP Fwd] (∗3)	Sets Threshold level.	According to the setting of Threshold, the values can be changed within the range mentioned below.	–
		• Normal: The value is fixed, with no display of the value.	–
		• Auto Threshold Level: 0-8 (Default: 0)	–
		• Manual Threshold Level: 0-8 (Default: 0)	–
		• Pedestal Level: 0-8 (Default: 0)	–
[Rev SCAN], [SCAN Fwd] (∗3)	Sets V-Sync Det.	Normal (∗) /Short/Long	–
[Rev STILL STEP], [STILL STEP Fwd] (∗3)	Sets Std Det.	Normal (∗) /Non STD	–
[SPEED +], [SPEED -] (∗3)	HD Err Det	Normal (∗) /Fast/Stop	
CLEAR (∗3)	Initializes the setting of General Setting mode.	–	Pressing the key resets all settings (①-③ of Table 2) of General Setting mode to the initial values. Settings of Specific Channel Setting mode are not affected (they are retained).
ESC	Exits AVIO setting for specific areas, clearing the OSD. (Tuner screen appears)	–	–

∗R : Refers to keys on the remote control unit supplied with this unit. The keys without "R" refer to the remote control unit for service.
∗3 : If a setting value is changed, that is immediately reflected, and the data are written to nonvolatile memory.

7.1.5 SERVICE MODE

Overview and purposes

To be used to check the status of the product and to collect the information for failure diagnosis.
The following information to be used for servicing is displayed:
[1] First screen : Version, HDD information, etc.
[2] Second screen : ATA/ATAPI debug screen (Writer information)
[3] Third screen : DV debug screen
[4] Fourth screen : VR-recording-related error logs
[5] Fifth screen : VR-playback-related error logs

Each screen has sublevel screens.

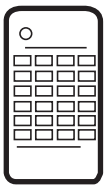
[Note] After entering any Service mode screen, to shift to another Service mode screen, first quit that Service mode screen then enter another Service mode screen.

1. Version information, etc. (First screen)

[Purposes]

To check the versions of the system control computer, TUFL microcomputer, and firmware for the drive, simple measurement of the RF level for the U/V tuner, HDD information, and results of the simple error rate measurement

[Tools to be used]



Remote control unit for servicing (GGF1381)

Aluminum-coated test disc (GGV1025)

[How to enter] While the GUI screen is not displayed, press the ESC then DISP keys.

How to enter and change subscreens of the first screen: While the first screen is displayed, press the DIG/ANA key repeatedly until your desired subscreen is displayed. The subscreens change

[How to quit] Press the ESC key.

[Description]

(1) First screen

* XV-DVR9H is displayed as " DVR-520H/(Destination) ".

```
① DVR-520H/RLT
② VERSION  : 4.**
③ SYSCON   : RELEASE_131
             Rev     :1.5036  $
④ TUFLCON  : 7.**   MASK              OK
⑤ DRIVE    : DVD-RW DVR-107X          OK
             1.13W                    OK
             CKT0000353WL             OK

⑥ HDD      : ST380012ACE              80
⑦ DEVICE   : PRISM-PLUS
⑧ REGION   : 3
⑨ C        : *********
⑩ FLASH    : 64M
```

* TUFLCON for XV-DVR9H/(WL/YPW) is displayed as " 7.xx ".

OK : Appropriate version compared with that of the firmware of the system control computer
OK+ : The version of the TUFL microcomputer is advanced.
Measures to be taken: Download the firmware.
NG- : The version of the TUFL microcomputer is older.
Measures to be taken:
- Download the firmware. (for the flash type)
- Replace the TUFL microcomputer or the CONTROL Assy (for the mask type)

OK : The appropriate drive is mounted.
NG : An inappropriate drive is mounted.
Measures to be taken: Replace with an appropriate DRIVE Assy.

OK : Appropriate version compared with that of the firmware of the system control computer
OK+ : The version of the drive microcomputer is advanced.
Measures to be taken: Download the firmware.
NG- : The version of the drive microcomputer is older.
Measures to be taken: Download the firmware.

OK : The serial No. for the drive has been registered.
NG : The serial No. for the drive has not been registered.
Measures to be taken: Replace with an appropriate DRIVE Assy.

① Model name/destination
② Version of the recorder software
③ Revision No. of the system-control computer software (Edition administration No. [from top to bottom, common software, firmware, application software])
④ Version No. of the tuner microcomputer, Mask or Flash Result of the combination ckeck with system u-com
⑤ Information on the built-in drive (Model name, version No., model type, serial No.)
⑥ Data of the built-in HDD, capacity of the HDD
⑦ Version No. of PRISM
⑧ Region No.
⑨ CPRM information (CPRM key No.)
⑩ FLASH ROM information

- **Details on HDD data are described below:**

HDD : WDC10234564 # 80

- Capacity of the HDD (unit: Gbytes)
- HDD identification error indication
- Name of manufacturer, part No. by manufacturer

If any abnormality exists in HDD connection, the indications shown in Table 1 below are displayed.

Table 1: HDD recognition status represented by the HDD data display

HDD identification conditions	Example of HDD data to be displayed	Remarks
Failure in physical identification of HDD (no connection, defective HDD, interface error)	Blank space	• Check the connection to the ATA connector. • Replace the ATA flexible cable and connector. • Replace the HDD. • Replace the resistor in the ATA communication line.
Physical identification of HDD possible, but not identified (CPRM ID is not input.)	WDC 10234564 # 80	"#" represents an HDD-recognition error. • Input the CPRM ID.
Physical identification of HDD possible, HDD identified, but failure in logical formatting	WDC 10234564 ! 80	"!" represents an HDD-recognition error. • Initialize the HDD, or erase all titles.
Physical identification of HDD possible, HDD identified, and correct logical formatting (HDD correctly identified)	WDC 10234564 80	

If an error indication in the HDD data does not disappear even after the above measures were taken, refer to another sheet of "HDD Service Mode."

(2) Subscreen 1 (This sub screen is not for service use.)

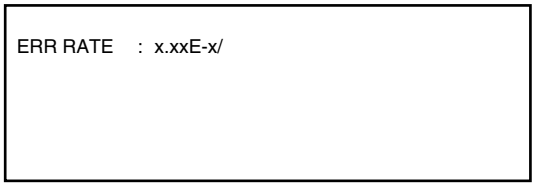
(3) Simple Error Rate Measurement (Subscreen 2)

[How to enter]
- While the User Operation screen is displayed, press the [ESC] then [DISP] keys, then the [DIG/ANA] key twice, in that order.
- While subscreen 1 of the first screen is displayed, press the [DIG/ANA] key.

[How to quit] Press the [ESC] key.

[Measurement procedures]

① Display subscreen 1.
② Load the Test disc (GGV1025).
③ Judge the results of the error rate measurement by referring to Table 4 on "7.1.6 ERROR RATE MEASUREMENT".



Subscreen 2

[Tips]

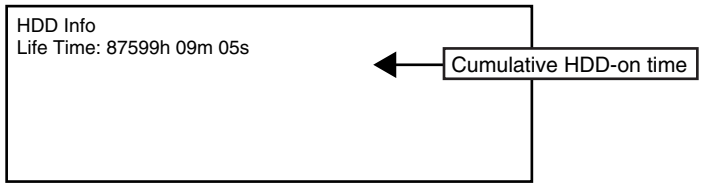
During VR mode playback, the average value of the past 10 VOBUs is displayed. During DVD-Video or Video mode playback, the average value of the past 256 sectors is displayed.
During VR mode playback, the speed ratio of the drive (/: normal, no indication: double speed) is also displayed.

(4) HDD information (Subscreen 3)

[How to enter]
- While the User Operation screen is displayed, press the [ESC] then [DISP] keys, then the [DIG/ANA] key Three times, in that order.
- While subscreen 2 of the first screen is displayed, press the [DIG/ANA] key.

[How to quit] Press the [ESC] key.

[Mode description]



Subscreen 3

[Tips]

- **How the data on cumulative HDD-on time are processed in memory**

  Storage place:
  Backup SRAM, FLASH ROM

  Timing of referring to the data on cumulative HDD-on time:
  When the power is turned on, the Backup SRAM is referred to regarding the data on cumulative HDD-on time, and the data are stored in the RAM. If referring to the Backup SRAM fails, the FLASH ROM is referred to.

  Timing of updating the data on cumulative HDD-on time:
  While the HDD is on, the data on cumulative HDD-on time in the RAM is updated every 3 seconds, and every time updating is executed the data are stored in the Backup SRAM. When the power is turned off, the data are stored in the FLASH ROM.

- **How to clear the data on cumulative HDD-on time**

  Backup SRAM:
  When the HDD Identification Setting is performed, the data on cumulative HDD-on time are automatically cleared. The HDD Identification Setting is automatically performed when the CPRM setting is performed on the CPRM setting screen (to display the CPRM setting screen, press the ESC then the STEREO keys).
  Notes: • The data on cumulative HDD-on time are not cleared when resetting to factory-preset values is performed.
  • The data on cumulative HDD-on time are not cleared when the system-control computer software is downloaded.

  FLASH ROM:
  The data on cumulative HDD-on time cannot be cleared (they are not cleared even if resetting to factory-preset values is performed or if the system-control computer software is downloaded).
  Note: The data on cumulative HDD-on time in the FLASH ROM can be cleared if you clear the data in the Backup SRAM following the above-mentioned procedures then turn off the power of the unit, because the data in the Backup SRAM are stored in the FLASH ROM when the power is turned off.

2. ATA/ATAPI Debug Screen (Second screen)

[Purposes]

To be used as a rough guide to judge whether the pickup unit is all right or not

- Dirt on the pickup lens
- Degradation of the laser diodes for reading CDs and reading/writing to/from DVDs

[Tools to be used]

Remote control unit for servicing (GGF1381)

Aluminum-coated test disc (GGV1025)

[How to enter]

- While the User Operation display is displayed, press the ESC, DISP, then 2 keys, in that order.
- While any subscreen of the second screen is displayed, press the DIG/ANA key repeatedly. The subscreens change cyclically.

[How to quit] Press the ESC key.

[Description of each subscreen]

(1) Command log (ALL) of ATA/ATAPI DEBUG OSD (Subscreen 1) (Not for service)

```
ATA/ATAPI  History - ALL
  32 0100000000000A000          OK
  32 2A00000DEBB0000063000      OK
  32 2A00000DF1E0000063000      OK
  32 2A00000DF810000063000      OK
  32 2A00000DFE40000062000      OK
  32 2A00000E046000063000       OK
  32 2A00000E0A90000063000      OK
  32 2A00000E10C0000063000      OK
>32 2A00000E16F00006200023A00
```

(2) Command log (ERROR) of ATA/ATAPI DEBUG OSD (Subscreen 2) (Not for service)

(3) Writer maintenance information of ATA/ATAPI DEBUG OSD (Subscreen 3)

[How to enter]

- While the User Operation screen is displayed, press the ESC, DISP then 2 keys, then the DIG/ANA key twice, in that order.
- While subscreen 1 of the second screen is displayed, press the DIG/ANA key twice.

[How to quit] Press the ESC key.

[Procedures] Update the display by pressing the SEARCH key while subscreen 3 is displayed.

```
ATA/ATAPI  Writer MaintenanceInfo
①→Power ON      00 00 00 0000 00000000
  0102:56       01 00 00 0000 00000000
  DVD           02 00 00 0000 00000000
②→R0053:48      03 00 00 0000 00000000
③→W0022:16      04 00 00 0000 00000000
  CD            05 00 00 0000 00000000
④→R0034:04      06 00 00 0000 00000000
⑤→W0000:00      07 00 00 0000 00000000
                   00-00
```

Error log for the Writer (Not for Service)

① Power-on time/cumulative power-on time
② Duration of emission of the laser diode (LD) for DVD-R/DVD while reading
③ Duration of emission of the LD for DVD-W/DVD while writing
④ Duration of emission of the LD for CD-R/CD while reading
⑤ Duration of emission of the LD for CD-W/CD while writing (This function is not used for this model.)

If the total hours of duration of emission of the laser diode (LD) for DVDs while reading ② and that of emission of the LD for DVDs while writing ③ exceed 4,700 hours, the LDs may be degraded. Perform an LD degradation judgment, using subscreen 4.

[Tips] MTTF hours for each LD (R7 Drive Assy [total hours of reading and writing])
DVD: 4,700 hours
CD: 11,000 hours
The ATA/ATAPI Writer Maintenance Info is obtained each time the power is turned on. Thereafter, the data on the subscreen is updated each time the SEARCH key is pressed (the updating command is sent) while this subscreen is displayed. Care must be taken when updating this subscreen, because an undesired command is inserted if it is executed while recording, etc.

(4) LD degration judgment of ATA/ATAPI DEBUG OSD (Subscreen 4)

[How to enter]
- While the User Operation screen is displayed, press the [ESC], [DISP] then [2] keys, then the [DIG/ANA] key three times, in that order.
- While subscreen 1 of the second screen is displayed, press the [DIG/ANA] key three times.

[How to quit] Press the [ESC] key.

[Notes]
- For correct measurement of items ① to ④ indicated in the display below, leave the unit at room temperature (25°C) for a while before turning it on, and do not load a disc.
- For RF measurement (item ⑤), it is recommended to use the Test disc (GGV1025).
  As the RF level differs depending on the characteristics of the pickup from product to product, it cannot be used for judging degradation of the LD. Use the RF level as a rough guide to know the difference between before and after lens cleaning.

[Procedures] To update the value for each item, press the [SEARCH] key while subscreen 4 is displayed.
For details on each item and the conditions of updating the values, see Table 2 below.

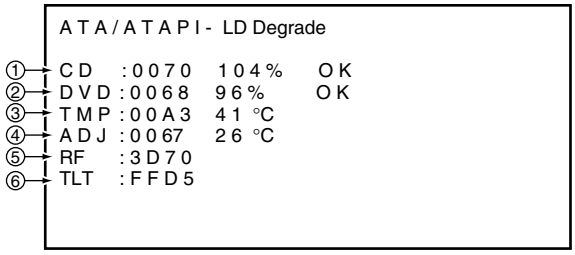


Table 2: Description of each item and conditions for updating data

No.	Item	Description	Conditions for updating by pressing the SEARCH key
①	CD	Degradation judgment of LD for CD. Regarded as NG when the value is 120% or higher (same standard as for the PC drive)	No disc inserted in the disc tray
②	DVD	Degradation judgment of LD for DVD. Regarded as NG when the value is 120% or higher (same standard as for the PC drive)	No disc inserted in the disc tray
③	TMP	Current temperature inside the Writer	No disc inserted in the disc tray
④	ADJ	Temperature (approx. 25°C) inside the Writer during adjustment	No disc inserted in the disc tray
⑤	RF	RF level (16-bit data, proportional calculation performed using the actual RF level value with 2.5 V = 0xFFFF as the maximum value, displayed in 4-digit hexadecimal)	During playback of Test disc (GGV1025)
⑥	TLT	Writer adjustment data for straight (non-HDD) model (FFFF is diplayed when the writer is not adjusted.)	No condition

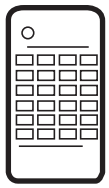
If the results of degradation of the LDs for CDs and DVDs are both NG, replace the drive.

3. DV debug Screen (Third screen)

[Purpose]

To check whether communication between a DV device and the unit is normal when a DV device is connected

[Tools to be used]



Remote control unit for servicing (GGF1381)

- DV device
- DV cable

[How to enter] Press the ESC , DISP then 3 keys, in that order.

[How to quit] Press the ESC key.

[Mode description]

① **(DV/1394) Init:**OK **AV:**01 **DV:**01 **INT4:**02

② **[Recorder] GUID:**00E0360001600001 IRM
③ **iPCR:**C03F0000 **oPCR:**0000007A
④ **[DV] GUID:**0080880303480E96
⑤ **VN:**VICTOR **MN:**GR-D50K
⑥ **TM:**C3 **TS:**75 **CT:**32 **WP:**01 **PS:**FF **OS:**00
⑦ **CA:**A000002020 **CV:**FF **MD:**VTR
⑧ **[DVdecode:**Yes**]**
⑨ **TC:**00h20m35s02f **RD:**02/02/05 **RT:**10h34m50s
⑩ **ASPECT:**4:3 **CGMS:**000000 **APSTB:**00 **DEC:**525-60
⑪ **SF:**32kHz **QU:**12bit **AMODE:**4) Stereo
⑫ **[DVencode:**No**]**
⑬ **TC:**--h--m--s--f **RD:**--/--/--/-- **RT:**--h--m--s
⑭ **ASPECT:**-------- **CGMS:**-- **APSTB:**--

Boldface alphanumerics : Fixed indications
Nonboldface alphanumerics : Variable indications

No.	Item	Description	Remarks
①	Init	Whether the initialization of uPD72893B (1394LINK & DVcodec IC) has been completed (OK) or not (NG)	In a case of NG, communication with uPD72893B may have failed.
	AV	Number of AV devices on the local bus	
	DV	Number of DV devices on the local bus	If the number does not become 01 even if a DV device is connected, identification of that device fails.
	INT4	Number of executing INT4(PIO) interrupt processing routines until a POWER ON notification arrives from uPD72893B (normally, 02)	
②	GUID	GUID set in ConfigROM of the unit	In a case of ROOT (IRM), IRM is displayed at the right most of the GUID indication, GUID : Global Unique ID
③	iPCR	iPCR value of the unit	
	oPCR	oPCR value of the unit	
④	GUID	GUID set in ConfigROM of the connected DV device	Data are displayed only if one DV device is identified. If the connected DV device is ROOT (IRM), IRM is displayed at the rightmost of the GUID indication
⑤	VN	Vendor name set in ConfigROM of the connected DV device	Data are displayed only if one DV device is identified. (Depending on the device, the vendor name may not be set in ConfigROM.)
	MN	Model name set in ConfigROM of the connected DV device	Data are displayed only if one DV device is identified. (Depending on the device, the vendor name may not be set in ConfigROM.)

No.	Item	Description	Remarks
⑥	TM	Transport Mode data obtained from the DV device	Data are displayed only if one DV device is identified.
	TS	Transport State data obtained from the DV device	
	CT	Cassette Type data obtained from the DV device	
	WP	Copy-protection data obtained from the DV device	
	PS	Power-state data obtained from the DV device	
	OS	Output signal mode data obtained from the DV device	
⑦	CA	Connect AV data obtained from the DV device	Data are displayed only if one DV device is identified.
	CV	Camera/VTR data obtained from the DV device	
	MD	DV device mode	Camera or VTR is displayed only if one DV device is identified.
⑧	[DVdecode:XXX]	Whether Yes (in the process of requesting DV input) or No is indicated in XXX	Normally, Yes is indicated only when CH is set to DV
⑨	TC	Time-code data of the DVdecode Stream, or response data of the Time Code command	Stream time-code data are obtained when playback in the forward direction is performed. Otherwise, time-code data are obtained through an AV/C command.
	RD	Rec Date of DVdecode Stream	
	RT	Rec Time of DVdecode Stream	
⑩	ASPECT	Aspect Ratio of DVdecode Stream	
	CGMS	CGMS of DVdecode Stream (from left to right, CGMS data of bits 5-4: Audio ch2, bits 3-2: Audio ch1, and bits 1-0: Video)	Recording of DV input cannot be performed unless the value of CGMS is 00. CGMS (Copy Generation Management System) The two digit codes added to broadcast programs represent the flowing, 00 : Copy free, 10 : Once Copy, 11 : Never Copy
	APSTB	APS trigger bit of DVdecode stream	
	DEC	With/without DVdecode stream input	With input: Signal type (525-60, 625-50, 1125-60, 1250-50, or Invalid) is indicated, Without input: "No" is indicated.
⑪	SF	Sampling Frequency of DVdecode Stream	If SF is 44 kHz, it is considered that 44.1-kHz audio is input, and sound is muted on the unit.
	QU	QUANTIZATION of DVdecode Stream	
	AMODE	AUDIO MODE of DVdecode Stream	
⑫	[DVencode:XXX]	Whether Yes (in the process of requesting DV output) or No is indicated in XXX	Normally, Yes is indicated only with HDD or DVD playback
⑬	TC	TIME CODE of DVencode stream	
	RD	REC DATE of DVencode stream	
	RT	REC TIME of DVencode stream	
⑭	ASPECT	Aspect Ratio of DVencode stream	
	CGMS	CGMS of DVencode stream (common to video, audio ch1 and audio ch2)	Normally, sources other than CGMS=00 are not output.
	APSTB	APS trigger bit of DVencode stream	

■ Simple Diagnosis

Symptoms	Location in the Debug Screen*	Items to be Checked, and Conditions	Possible causes
No operation for either DV input or output	①	Check the init indication: OK: Initialization of DV-related LSIs (IC5101, IC5202) appropriately completed NG: Communication failure between DV-related LSIs (IC5101, IC5202) and HOST microcomputer (IC1001). Initialization of DV-related LSIs (IC5101, IC5202) has not been completed properly.	Defective IC, defective soldering, defective power supply, etc.
		Check the number of DV devices when one DV device is connected to the recorder: 01 : The connected DV device is correctly identified. Other than 01 : The connected DV device is not correctly identified.	Defective DV terminals, improper connection of the DV-terminal board, defective IC, defective cables, an IEEE 1394 device other than the DV device connected
No picture nor sound for DV input	⑧	Check of DV decoding when the recorder channel is set to DV: Yes: The recorder is in the process of a DV input operation No: The recorder is not executing a DV input operation	Defective IC, defective soldering, defective power supply, etc.
	⑩	Check DEC: 525-60: An NTSC DV signal is input from the DV device. 625-50: A PAL DV signal is input from the DV device. No: No DV signal is input from the DV device.	Defective DV terminals, improper connection of the DV-terminal board, defective IC, defective source device **Note:** As to a model having the Input Line System setting, if the setting and the actual input signal system do not match, no picture appears.
DV input recording impossible	⑩	Check CGMS (Copy Generation Management System) : 00: A copy-permitted source is being input. Other than 00: A copy-protected source is being input.	Recording cannot be performed for a copy-protected source.
No sound for DV input	⑪	Check SF (Sampling Flag) : 32 khz: An audio signal with 32-kHz sampling frequency is being input. 48 khz: An audio signal with 48-kHz sampling frequency is being input. 44 khz: An audio signal with 44.1-kHz sampling frequency is being input.	An audio signal with 44.1-kHz sampling frequency is muted.
No picture nor sound for DV output	⑫	Check DVencode during DVD/HDD playback: Yes: The recorder is in the process of a DV output operation No: The recorder is not executing a DV output operation (No is also displayed during playback of copy-prohibited sources or simultaneous-recording/playback.)	Defective IC, defective soldering, defective power supply, etc.

* : See "3. DV debug Screen (Third screen)".

4. VR-Recording-Related Error Logs (Fourth screen)

[Purposes]

To roughly determine in which category shown below a symptom that is difficult to reproduce belongs.
For details on the categories of error logs displayed, see "Table 1: Description of VR-recording-related errors."

- Errors related to the MPEG Encoder
- Errors related to the drive system
- Errors related to copying
- Errors related to others
- Errors related to the HDD

[Tool to be used]

Remote control unit for servicing
(GGF1381)

[How to enter]

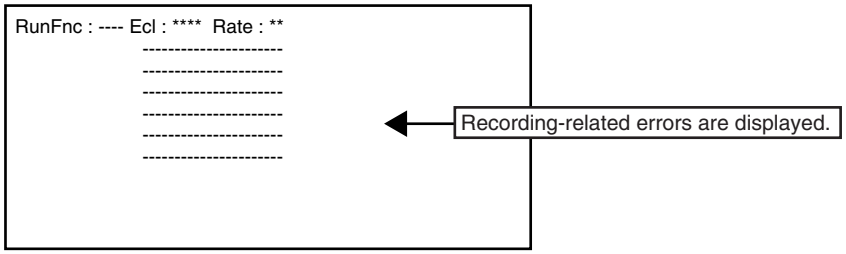
- While the User Operation display is displayed, press the [ESC], [DISP], then [4] keys, in that order.
- While any subscreen of the fourth screen is displayed, press the [DIG/ANA] key repeatedly.
  The subscreens change cyclically.

[How to quit] Press the [ESC] key.

[Description of each subscreen]

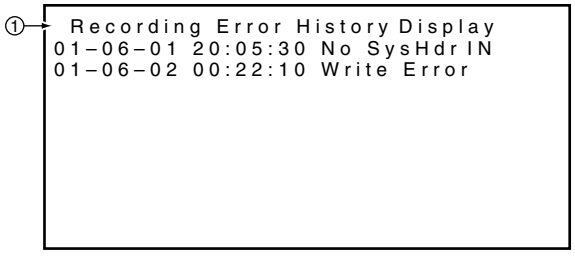
(1) VR-Recording-Related Error Logs (Subscreen 1)

- Errors related to recording are displayed on the lines "Rec Err:," as shown below.
  For details on errors, see "Table 1: Description of VR-recording-related errors."



(2) Subscreen 2 and 3 (These subscreens are not for service use.)

(3) VR-Recording-Related Error Logs (Subscreen 4)



① There are two error-log screens, on which up to 9 logs per screen are displayed.
(generation time [year-month-day, hour:minute:second], error data in simplified description)

[Tips]

- The two error-log screens can be switched by pressing the [SPEED+] or [SPEED-] key.
- For details on error messages, see Table 1 "Description of VR-recording-related errors".

(4) Subscreen 5 to 11 (These subscreens are not for service use.)

Table 1: Description of VR-recording-related errors

● Error related to MPEG Encoder

Error Message	Description
Stream NG	Inappropriate input stream data
Stm Start NG	Failure to start encoding (reasons not clear)
AVEnc Hang	AVEncoder failed
No SysHdr IN	System packet is not input periodically
Strm Start NG	Timeout waiting for system packet input at the beginning
IN Encode	Changes cannot be made in the process of encoding

● Error related to Drive system

Error Message	Description
BUF Overflow	Overflow of the Stream Buffer
Drive Hang	The Drive is hung up.
Write Err	The Drive failed to write and could not be recovered.
Read Err	Reading failed, ECC failed, etc.
Drv Hard Err	Abnormality in the drive hardware or firmware
Mech No Res	No response from the mechanical-control computer
Drv TimeOut	Timeout waiting for drive operation
NWA Exhaust	NWA surpassed and impossible to use
MKB Invalid	MKB reading error
Drv Err	General error of the drive
Fail Repair	Repair failed
ReadOnly DISC	Because some data are invalid, data cannot be written
May Be V mode	Although TMP_VMGI is not written, it may be Video Mode disc.
Rzn Rsv NG	Reserve RZone failed
Rzn Cls NG	Close RZone failed
Rzn Rpr NG	Repair RZone failed
Bdr Opn NG	Open Border failed
Bdr Cls NG	Close Border failed
Format NG	Format failed
OPC NG	OPC failed
PCA Full	PCA has been used up.
RMA Full	RMA has been used up.
VTSI_B Wr Err	Video Mode VTSI BUP Write Error
VTSI Wr Err	Video Mode VTSI Write Error
TMP-VMG WrErr	Video Mode TMP VMGI Write Error
CLS Rzon Fail	Video Mode Close Rzone failure

● Error related to Dubbing

Error Message	Description
Mem get NG	Video Mode Copy Memory has not ensured.
V Rsv RzoneNG	Video Mode Copy Reserve Rzone failed
VCHDD Info NG	Obtaining Video Mode Copy HDD Cell information failed
VC Pck Anl NG	Analizing Video Mode Copy Pack failed
VC VOBU SizeE	Video Mode Copy VOBU Size NG
Tracon Trn NG	Video Mode Copy Tracon tranfer has not been completed.

● **Error related to Dubbing (continued)**

Error Message	Description
Strm TransfNG	Video Mode Copy Stream Transfer NG
VC FlushC NG	Video Mode Copy Flush Cache NG
VC Transf Stp	Video Mode Copy Transfer Stop
VC CopyCancel	Video Mode Copy Copy Cancel
VC Idling NG	Video Mode Copy idling NG
VC TSO BLK NG	Video Mode Copy TSO Block transfer has not been completed.
VC Cell Max	Maximum number for Video Mode copy Cells exceeded
VC HDD Inf NG	No information on Video Mode Copy HDD
VC HDD C Err	Inappropriate Video Mode Copy HDD content
V2H SRC Prot	VR →HDD copy prohibitted material
V2H Aud Ch NG	VR →HDD Audio Channel NG
V2H Aud Stm N	VR →HDD Audio Stream number NG
V2H Aud Md NG	VR →HDD Audio Mode NG
V2H V Reso NG	VR →HDD Video resolution NG
V2H Unknown	VR →HDD other NG
H2D CP SomeNG	VR →HDD copy and other NG

● **Other Errors**

Error Message	Description
DRAM NG	Abnormality in access to the Work DRAM
SRAM NG	Abnormality in access to the backup work SRAM
CPRM IC NG	Inappropriate CPRM IC
Drive Destroy	The drive has crashed.
MKB REVOKED	Error in gaining data
WM Cracked	WM Cracked
VBR-SRAM NG	Abnormality in VBR SRAM
BK BATT Down	Backup RAM data has been erased.
BK FSYS Dirty	Backup RAM data has not been wrtten on the File Sys.
VOBU Info NG	Inappropriate VOBU information
EncModul Hang	Encoder routine is hung up.
Ourob Strm NG	Inappropriate stream data to the Ouroboros input
WaterMark Det	Watermark detected
No Video	No video input (not locked)
Disc Full	No further data can be written because the disc is full.
No More Info	No more space in the internal work-management area
No Permission	No permission to write to the disc
Limit Over	Standard maximum limit exceeded
Rec Pause	No operation permitted during recording pause
Invalid Param	Invalid parameter
Protect Src	Source to be recorded is copy-protected.
Now Busy	In the process of the emergency processing
Invalid Disc	The disc cannot be recognized.
Invalid UDF	Invalid UDF content
Invalid VMG	Invalid VMG content
Invalid TMVMG	Invalid TMP_VMGI content
Unmatch Stamp	Impossible to modify because of nonmatching time stamp
Virgin DISC	Virgin Disc

● **Other Errors (continued)**

Error Message	Description
SW Vpb mode	Switching to video playback routine is required.
SW Vrec mode	Switching to video recording routine is required.
NV Pck MK Err	Error in creating NaviPack
NV Pck DMA Er	Inappropriate NaviPack DMA
Cell Close NG	Cell Close NG
Relocation Do	VR-recording data was relocated
Something	undetermined error
Status NG	Abnormality in change of statuses
Irr Action	Incorrect action
Abort	Cancellation
BusReset Done	Bus Reset has been excecuted.
Repair Excec	Repairing has been executed.
Format Excec	Formatting has been executed.
BUG	Some bugs
PARAM NO ACCP	Recording parameter is not matched.
DRAM CLR Err	Video Mode DRAM (Stream Buffer) Clear failure
V Categ ID NG	Inappropriate Category ID
V Cate Inf NG	Inappropriate Category information
V Ext TY NG	Type NG
V Ext MAX Ovr	Count Max exceeded
V ExtToo Big	The extension file is too large.
Over Heat	Abnormal temperatute

● **Error related to HDD**

Error Message	Description
HDD unauthor	Inconsistent HDD serial No.
HDD Destroy	HDD is not recognized on the bus.
TT Rec Over	Title recording time full
HDDReset Done	HDD Reset executed
Task No Activ	Task has not been activated.
HDD Buff High	High-level process executed for the HDD Buffer
HDD Trans Err	DMA error in HDD copy transfer
HDD Zero WR	MBR readout generated
HDD Initialize	HDD initialized
HDD MBR NG	Inconsistent MBR data
HDD SIG NG	Inconsistent HDD Management Data Magic
HDD INFO BAD	Incorrect HDD Management Data
HDD IRRG POFF	Abnormal power off
HDD SMART NG	Inappropriate HDD SMART

● **No Error**

Error Message	Description
Non Err	Normal

Abbreviations:

ECC = 4 byte Code for Error Correction
UDF = Universal Disc Format
PCA = Power Calibration Area
OPC = Optical Power Control
NWA = Next Writable Address
VMG = Video Manager
RMA = Recording Management Area
MKB = Media Key Block
TMP_VMGI = Temporary Video Manager Information
Border = from Lead-in to Lead-out

5. VR-Playback-Related Error Logs (Fifth screen)

[Purposes]

It can be inferred that an operation that caused an error in the drive was performed or that a failure occurred in the drive if any of the error logs shown in "Table 2: Description of VR-playback-related errors" is recorded on this screen.

[Tool to be used]

Remote control unit for servicing
(GGF1381)

[How to enter]

- While the User Operation display is displayed, press the [ESC], [DISP], then [5] keys, in that order.
- While any subscreen of the fifth screen is displayed, press the [DIG/ANA] key repeatedly. The subscreens change cyclically.

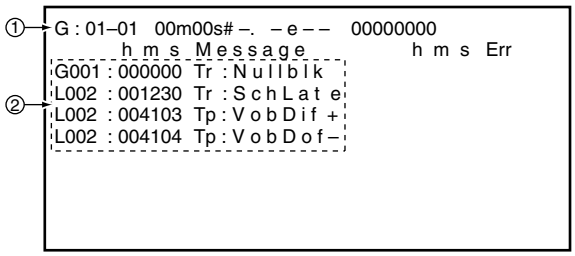
[How to quit] Press the [ESC] key.

[Description of each subscreen]

(1) Subscreen 1 (This subscreen is not for service use.)

(2) VR-Playback Error Logs (Subscreen 2)

- For details on error messages, see Table 2 "Description of VR-playback-related errors".
- If a VR-playback-related error is generated, a problem in data reading from the disc may be suspected. (The possibility of a problem on the drive side is high.)


①
G : 01–01 00m00s# –. – e – – 00000000
h m s Message h m s Err
②
G001 : 000000 Tr : Nullblk
L002 : 001230 Tr : SchLate
L002 : 004103 Tp : VobDif +
L002 : 004104 Tp : VobDof –

① Data on location of the display (Display only in disc playback with the VR mode)
Original(G)/play list (L), title No., chapter No. [X:XXX-XX],
time of the display (min, sec, frame) [XXhXXmXXsXX],
busy mark of the virtual mechanical-control computer [#],
error rate of the transfer data [X.XeXX],
playback logical address (ID) [XXXXXXXX]

② Error message log
Original(G)/play list (L), title No., time of generation (min, sec) [XXX:XXXX],
playback-related error log for the last 13 errors [XXX:XXXXXXX]

(3) Subscreens 3 and 4 : These subscreens are not for service use.

Table 2: Description of VR-playback-related errors

Error Message	Description
Tr : NullBlk	Transfer task: NULL at the top block (Detecting NG stream made at the DVR-1000 series and starting protection process.)
Tr : ReadErr	Transfer task: ATA read error
Tr : SchLate	Transfer task: ATA search late
Tr : SemTOvr	Transfer task: Timeout for gaining semaphore (no synchronization with the display)
Tr : NaviErr	Transfer task: Inconsistency between NAVI (navigator) of management data and actual NAVI
Tr : OrderEr	Transfer task: Inconsistent order
Mn : Av1Hang	Main task: Detects hang-up of AV decoder and starts recovery
ERR_RCV!	TPP task: Detects hang-up of AV decoder and starts recovery
Tp : VobDif+	TPP task: The decoder STC advances by 1 VOBU hour.
Tp : VobDif-	TPP task: The STC of the management information advances
Tp : midNULL	TPP task: The management information pointer designated was NULL.
Tp : ScanNg	TPP task: Failure to set the TPP memory when scanning was canceled.
Tp : RStepEr	TPP task: Although the reverse step had failed, the operation was forcibly terminated because the top cell was located.
Tp : tppErr	TPP task: Inconsistency occurred.
Rv : 1stTOvr	Reverse playback task: Timeout for waiting for interruption to the top VOBU immediately after starting decoding
Rv : OpnTOvr	Reverse playback task: Timeout for waiting for B-picture of the open GOP immediately after starting decoding
Rv : OplTOvr	Reverse playback task: Timeout for waiting for I-picture of the open GOP immediately after starting decoding
Rv : LnkTOvr	Reverse playback task: Timeout for waiting for link
Rv : LnkFail	Reverse playback task: Starts compensation by detecting link failure
Rv : R2FTOvr	Reverse playback task: Starts retrial after detecting timeout from reverse pause to forward pause
Rv : TopVbEr	Reverse playback task: Forced termination because of a possible error of the top data during reverse normal playback
Rv : OrderEr	Reverse playback task: Inconsistent order
Av : B/CTOvr	AV1: Buffer-clear timeout
Av : StrmOvr	AV1: Timeout for waiting for stream ready
Av : TpmTOvr	AV1: Timeout for TP mode change
Av : SpmTOvr	AV1: Timeout for a step command
CC_OS_ERR	Closed caption task: OS error

Abbreviations:

STC = System Time Clock
VOBU = Video Object Unit
GOP = Group Of Picture
B-picture = Bidirectionally predictive-picture
I-picture = Intra-picture
P-picture = Predictive-picture
TP mode change = AV1 term (Trick Play mode change)

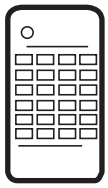
7.1.6 ERROR RATE MEASUREMENT

[Purposes]

To check the playback quality of discs and the recording quality of recorded discs.
It is also possible to judge whether the DVD drives are all right, by using test discs.

Measurement of error rate can be performed in two ways (Video-Mode Recording mode, and DVD-Video Playback mode) by using the following discs:
① DVD-RW (Video mode)
② DVD-VIDEO (Playback media)

[Tools to be used]



Remote control unit for servicing (GGF1381)

Aluminum-coated test disc (GGV1025)

Commercially available DVD-RW disc or a disc that the user brought to be checked

[How to enter] Press the [ESC] then [SIDE-B] keys.

[How to quit] Press the [ESC] key.

[Notes]

- In "Video-Mode Recording mode," use a DVD-RW disc that has been initialized in Video mode.
- In "Video-Mode Recording mode," if there is no input source, "ERROR" is displayed after measurement.
- A CD or DVD-RW disc that has been initialized in VR mode cannot be measured.

[Procedures]

Video-Mode Recording mode	Displays	
	On the FL display	As an OSD
① Load a disc.	ERROR RATE	
② Press the [ESC] then [SIDE-B] keys on the remote control unit for servicing.	ERROR RATE	
③ DVD recording is automatically performed for 10 seconds.	XXXXX	
④ A DVD title automatically recorded is played back while the error rate is being measured. As soon as playback is completed, playback stops.(*1)	ER x.xE-x	ER x.xE-x
⑤ After the error rate is measured, the average error rate is displayed on the FL display and as an OSD. Only when the average error rate is NG, the tray is opened.	ER x.xE-x	ER x.xE-x * OK

DVD-Video Playback mode	Displays	
	On the FL display	As an OSD
① Load a disc and play it back. ② Press the [ESC] key then [SIDE-B] or [PLAY] key on the remote control unit for servicing.	ER x.xE-x	ER x.xE-x
③ Measurement starts, and the average error rate is calculated. The result is displayed on the FL display and as an OSD.(*2)	ER x.xE-x	ER x.xE-x * OK

[Tips]

*1 Whether the playback error rate measurement has been completed or not is determined as shown in Table 3 below:

Table 3: How it is determined whether the playback error rate measurement has been completed or not

Recording mode	How it is determined whether the playback error rate measurement has been completed or not	Playback time required for completing an error rate measurement
Video mode	After a certain amount* of data have been played back *After measurement of 16 ECC blocks 16 times, the sum is used for the calculation of an error rate. The capacity is as follows: 16 ECC blocks × 16 sectors × 2048 bytes × 16 times = 8,388,608 bytes = 67,108,864 bits	The playback time required for completing an error rate measurement differs according to input video signals to be recorded. (The more rapid the movement of the input video signal to be recorded, the shorter the playback time required for completing an error rate measurement becomes.)

*2 If an error rate measurement in DVD-Video Playback mode is finished, playback continues, and the error rate value remains to be displayed. While playback continues, if the ESC key is pressed for quitting Error Rate Measurement mode then Error Rate Measurement mode is reentered by pressing the ESC then SIDE-B or PLAY keys, the previous error rate remains displayed, and measurement of a new error rate will not start. To reset the previous measurement value, stop playback.

*3 OK/Error judgment
In DVD-Video or Video mode recording, OK or Error is determined in the following conditions:

Table 4: Thresholds when determining OK or Error

Disc type	Recording mode	Finalized or not finalized	Reference value	Display
DVD-VIDEO	–	–	8.0×10^{-4}	OK/Error
DVD-R	Video mode	Finalized	1.0×10^{-3}	OK/Error
		Not finalized	1.0×10^{-3}	OK/Error
DVD-RW	Video mode	Finalized	1.0×10^{-3}	OK/Error
		Not finalized	1.0×10^{-3}	OK/Error

7.1.7 AGING MODE

[Purposes]

If symptoms regarding recording/ playback of discs and/or the HDD that your customer claimed are difficult to reproduce, they can be reproduced with a long-time test in Aging mode.

[Tools to be used]

Remote control unit for servicing (GGF1381)

Remote control unit supplied with the unit (AXD7401)

Commercially available, recordable DVD-R and DVD-RW discs

[Notes]

- When aging for the DVD-RW and HDD is executed, all recorded data on them will be erased.
- Be care that commands from the remote control unit are accepted during Aging mode.
- If Aging mode is quit using the ESC key, indications on the FL display will return to normal display.
- Make sure that cancel timer settings before entering Aging mode.
- Set the recording rate beforehand. It cannot be changed during Aging mode.

[How to enter]

① Press the DVD key to switch to DVD.
② Load a recordable disc.
③ Select the input function of a recordable source.
④ After disc detection is performed, press the ESC then REP.B keys on the remote control unit for servicing to enter Aging mode.

[How to quit]

Press the ESC key on the remote control unit for servicing to quit Aging mode and return to Normal mode.

Notes:

- If during recording: Recording is stopped.
- If during playback: Playback is paused.
- If during initialization: The unit stops after initialization is finished. (aging for RW only)
- If the tray is being opened/closed: The unit stops after the tray is opened/closed. (aging for RW only)

[Description of operation]

Aging for the DVD-RW/DVD-R

Aging for the DVD-RW	Aging for the DVD-R
During Aging mode, the following operations are repeated in the order shown below. ① The tray opens. ② The tray closes. ③ Initialization ④ Recording for 60 minutes ⑤ Playback for 45 minutes	During Aging mode, the following operations are repeated in the order shown below. ① The tray opens. ② The tray closes. ③ Recording for 1 minute ④ Recording pause for 6 minutes ⑤ Recording stops. ⑥ Playback for 1 minute ⑦ Playback pause for 6 minutes ⑧ Playback stops. **Note:** A continuous test of the above operations is possible for approximately 23 hours.
③ Initialization is performed according to the setting specified in "DVD-RW automatic initialization" (followed by selecting "Initial Setup"→"Recording" →"DVD-RW Auto Init" then "Option").	After ② the tray closes, disc detection is performed, and if 99 titles have already been registered, the unit stops there. The number of the times repeated (① to ⑧) is retained and indicated on the FL display. An error indication is retained as an OSD.
During Aging, the number of the times repeated (① to ②) is indicated on the FL display, as shown below. [AGING 0001]	During Aging, the number of the times repeated (① to ⑧) is indicated on the FL display, as shown below. [AGING 0001]
If an error is generated, the aging operation stops. **Note:** Indications on the FL display are retained, and this information is also retained as an OSD.	If an error is generated, the aging operation stops. **Note:** Indications on the FL display are retained, and this information is also retained as an OSD. **Note:** Recording time depends on the recording rate set. For example, if the recording rate is MN32, only up to 60 titles can be registered. Check the setting for recording rate before performing aging.

[Aging for the HDD]

[How to enter]

① Press the HDD key to switch to HDD.
② Press the ESC key then the REP.B key on the remote control unit for servicing to enter Aging mode.

[How to quit]

Press the ESC key on the remote control unit for servicing to quit Aging mode and return to Normal mode.

Notes:

- If during recording: Recording is stopped.
- If during playback: Playback is paused.
- If during erasure of all memory data from the HDD, the unit stops after all memory data have been erased.

[Description of operation]

During Aging mode, the following operations are repeated in the order shown below.
① Erasure of all data in the HDD
② Recording for 60 minutes
③ Playback for 60 minutes

[Tips]

During Aging, the number of the times repeated (① to ③) above is indicated on the FL display, as shown below.

[AGING 0001]

If an error is generated, the aging operation stops.

Note:

Indications on the FL display are retained, and this information is also retained as an OSD.

7.1.8 DIAGNOSIS METHOD OF THE HDD

How to diagnose failure of the hard disc drive (HDD)

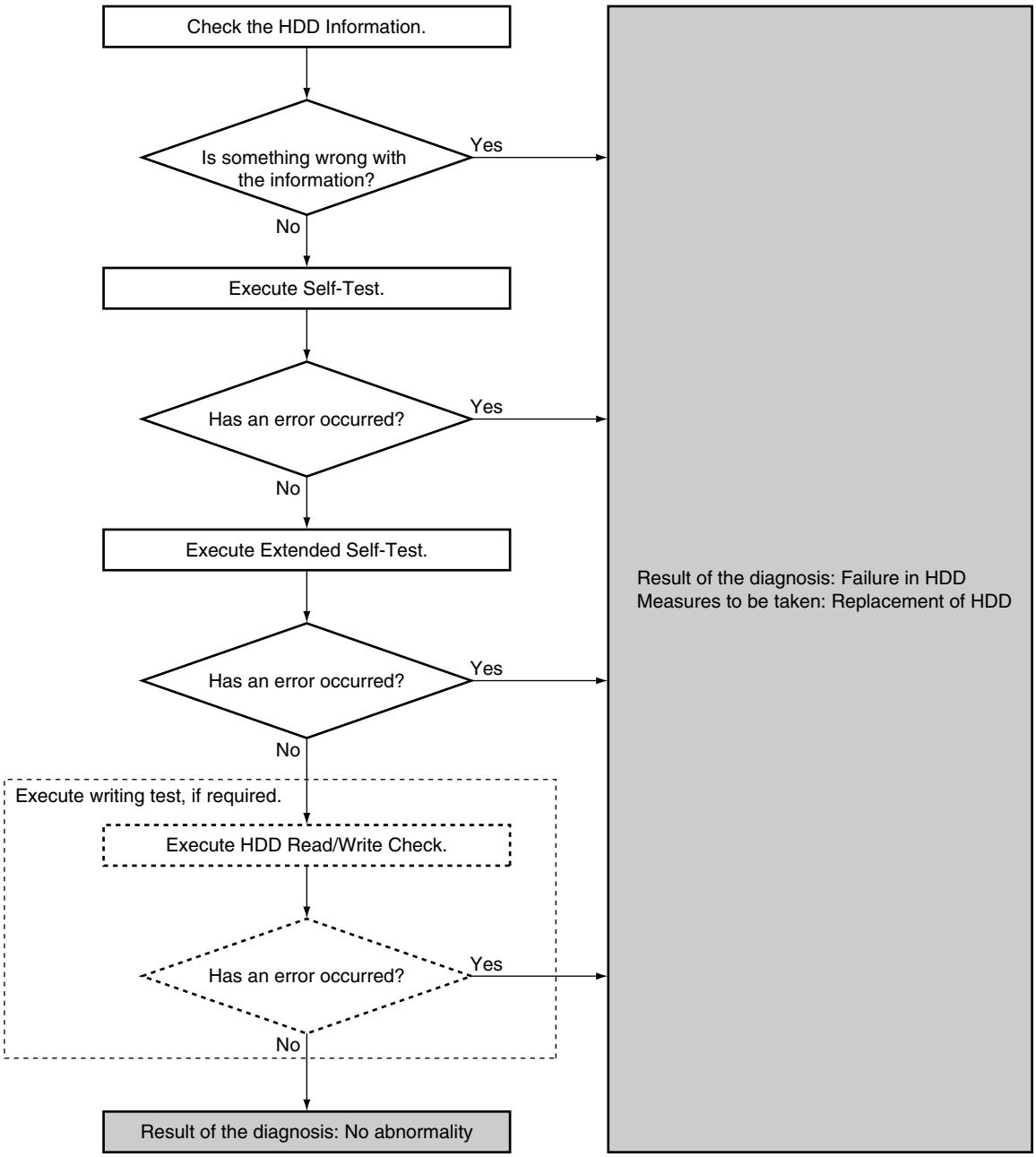
Purpose:
With use of the HDD-diagnostic program contained in the product itself, physical errors on the HDD can be diagnosed. Use this program to diagnose whether or not the HDD is in failure when one of the symptoms indicated below is recognized, or when a failure in the HDD is suspected.

Symptoms of failure in HDD:
(1) HDD Error
(2) Failure in HDD recording or playback
(3) HDD not recognized

Tool to be used:
Remote control unit for servicing (GGF1381)

1. Flow of HDD diagnosis

(1) Flowchart of HDD diagnosis



(2) Overview of the diagnosis items

HDD Information	This is a display for checking the HDD information, such as the model name of the HDD, continuous power-on time, authentication status, and results of the diagnosis on the end of service life. Time required for testing: Approx. 30 sec.
SELF TEST	This is a simplified diagnosis for the HDD. A serious failure in the HDD can be detected with this test. Time required for testing: Approx. 90 sec.
EXTENDED SELF TEST	This is a reading test across all sectors of the HDD. Data recorded on the HDD will not be erased, because no writing operation is performed. Time required for testing: Approx. 40 min/80 GB
HDD Read / Write Check	This is a writing, reading, and comparing test across all sectors of the HDD. **All data recorded on the HDD will be erased**, because all the data are to be overwritten. **Be sure to obtain your client's consent beforehand.** Time required for testing: Approx. 7 hours/80 GB

2. How to start or terminate the diagnostic program

How to start/terminate the diagnostic program

Use the remote control unit for servicing.

How to start: Press the "ESC", "CX", "0", and "1" keys simultaneously.

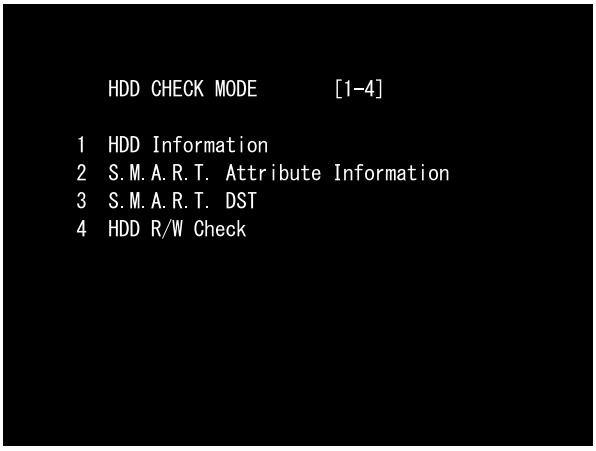
How to terminate: Press the "ESC" key.

Do NOT perform other operations on the unit while the HDD diagnosis is in progress. Although the diagnostic program is designed to function independently from the unit's functions, an operation on the unit during a diagnosis may cause a malfunction.

The status of the unit recommended during diagnosis is as follows: All stop, no timer recording, and Input selection to L1-L3.

3. Diagnosis procedures

① Display the menu on the screen.
The menu indicated below is displayed when the diagnostic program is started. To enter each mode, press the corresponding key "1"-"4" on the remote control unit for servicing.



Tests to be executed
① HDD Information:
Check of the HDD information
② S.M.A.R.T. DST:
Executing a simplified test or a reading test of all data
③ HDD R/W Check:
Executing a writing/reading test of all data. All data on the HDD will be erased if this test is executed.

Note: "2. S.M.A.R.T. Attribute . . ." is not to be used.

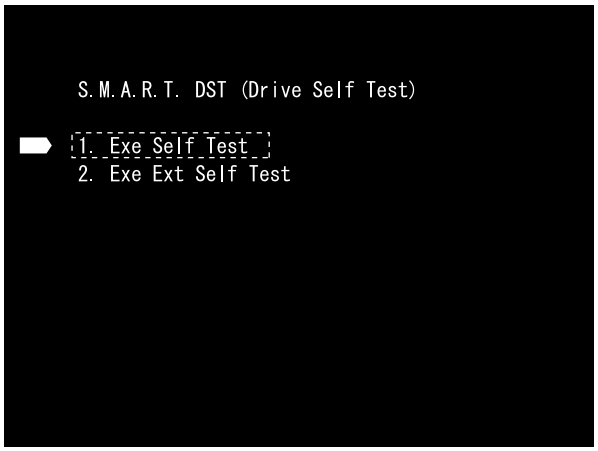
② Check the HDD information.
Press the "1" key on the remote control unit for servicing. Check the following data:
Model: Is the correct model name of the HDD displayed?
Recog. No: Is a positive value displayed?
SMART threshold: Is "not exceeded" displayed?

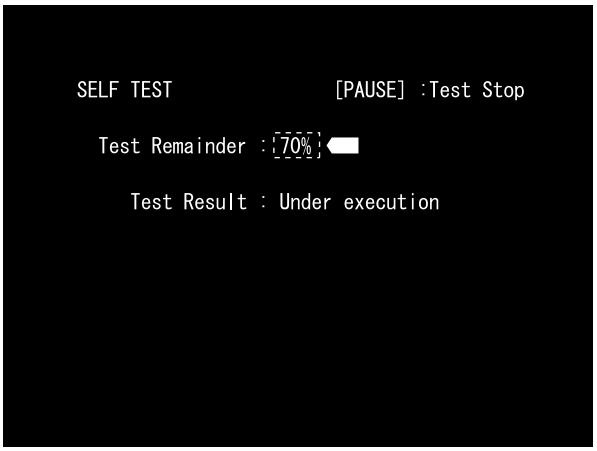
Detailed description
① Model:
For the correct model name, refer to the service manual of the unit.
② Recog. No:
Positive value: The HDD has been authenticated.
Negative value: The HDD has not been authenticated.
③ SMART threshold:
exceeded: The HDD has come to the end or near the end of its service life.
not exceeded: The HDD has not reached the end of its service life.

To return to the menu screen, press the "Clear" key.

③ Execute Self-Test.

Press the "3" key on the remote control unit for servicing while the menu screen is displayed.
When the following screen is displayed, press the "1" key to start the Self-Test.





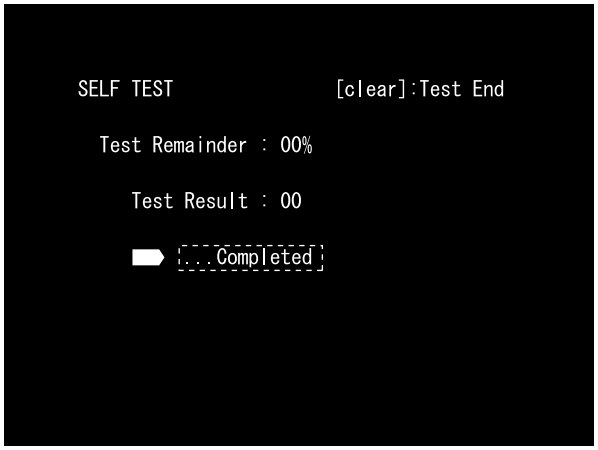
The progress of the test is displayed on the screen. The percentage remaining of the test is displayed on the screen, and the test is terminated when the percentage reaches 00%.
Check whether or not an error has occurred after the test is finished.

Diagnosis results

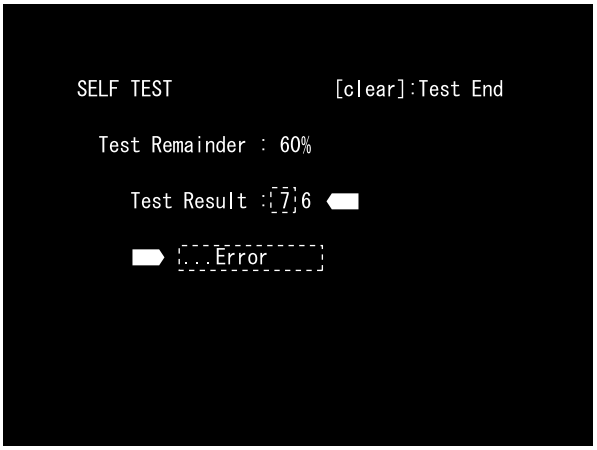
- Without an error: ". . . Completed" is displayed.
  Then, proceed to the Extended Self-Test.
- With an error: ". . . Error" is displayed. Look at the number in Test Result.
  If the place value for tens is 1 or 2, execute the Self-Test again.
  If it is from 3 to 7, the HDD must be replaced.

Note: If the result of the second test is the same, replacement of the HDD is required.

Example: No error

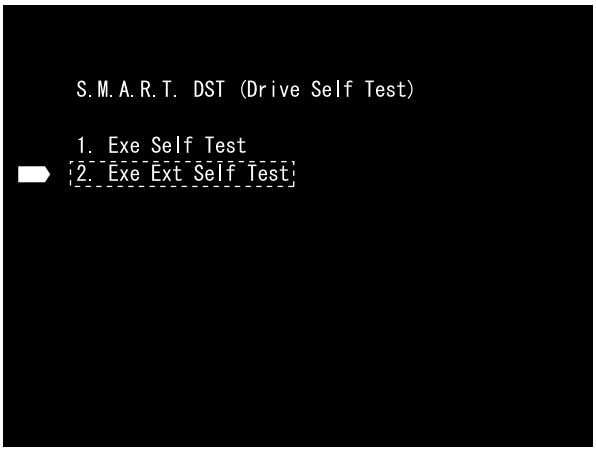


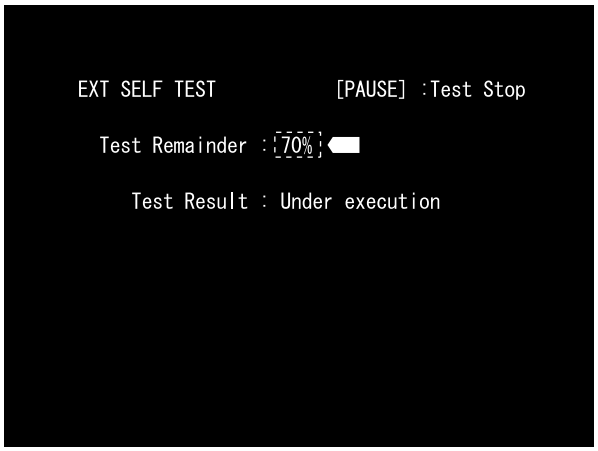
Example: With an error



To return to the menu screen, press the "Clear" key.

④ Execute the Ext (Extended) Self-Test.



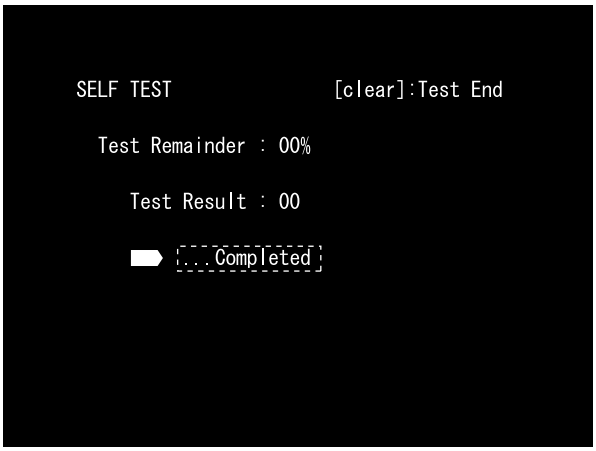


Press the "3" key while the menu screen is displayed, then the "2" key on the remote control unit for servicing. The Extended Self-Test starts. The percentage remaining of the test is displayed on the screen, and the test is terminated when the percentage reaches 00%. Check whether or not an error has occurred after the test is finished.

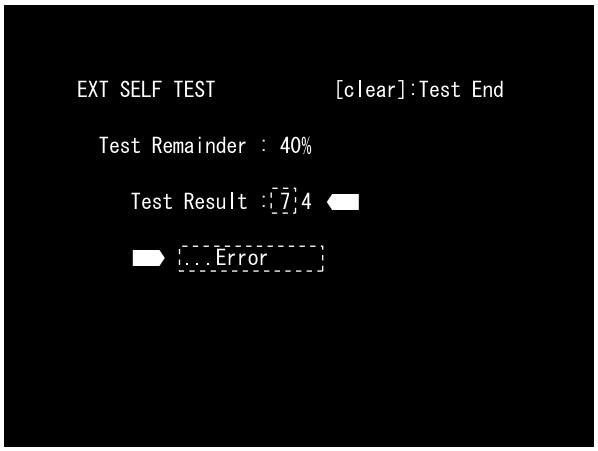
Diagnosis results
- Without an error: ". . . Completed" is displayed.
  If no error occurs up until this stage, HDD operations are normal except for writing operations.
  If the unit has a failure in HDD playback, a block other than the HDD may be in failure.
  If the unit's failure is in HDD recording, however, the next HDD Read/Write Check must be executed to test writing operations.
- With an error: ". . . Error" is displayed.
  Look at the number in Test Result.
  If the place value for tens is 1 or 2, execute the Ext Self-Test again.
  If it is from 3 to 7, the HDD must be replaced.

Note: If the result of the second test is the same, replacement of the HDD is required.

Example: No error



Example: With an error



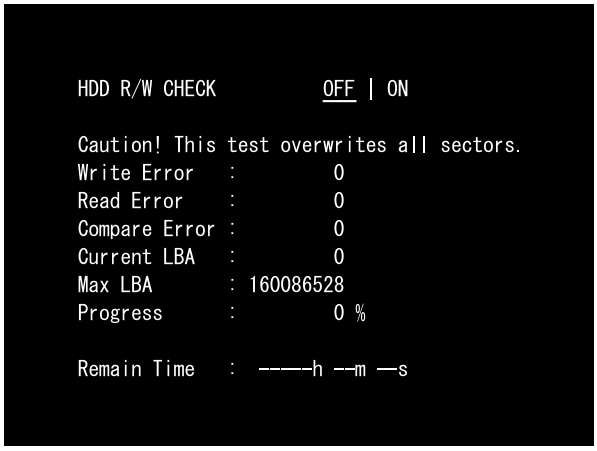
To return to the menu screen, press the "Clear" key.

⑤ Execute the HDD R/W Check.

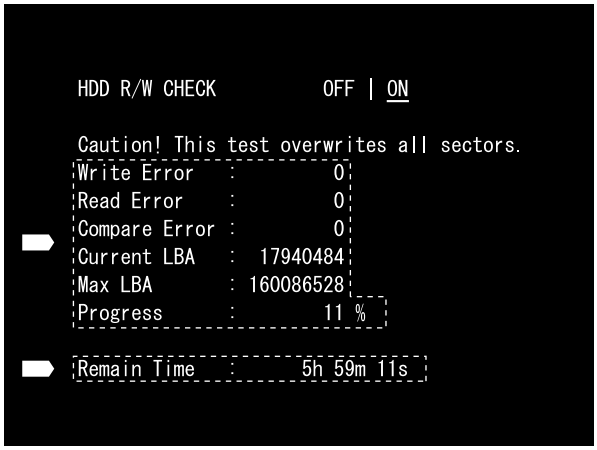
Before executing this test, **be sure to obtain your client's consent for erasure of HDD data**.

Press the "4" key while the menu screen is displayed then the "SKIP ►►I" key to start the HDD R/W Check.

To stop executing the test (OFF) while it is in progress, press the "SKIP I◄◄" key.


HDD R/W CHECK OFF | ON
Caution! This test overwrites all sectors.
Write Error : 0
Read Error : 0
Compare Error : 0
Current LBA : 0
Max LBA : 160086528
Progress : 0 %
Remain Time : -----h --m --s

The display on the left indicates the progress of the test.
The percentage of the test progress is displayed on the screen, and the test is finished when the percentage reaches 100%.


HDD R/W CHECK OFF | ON
Caution! This test overwrites all sectors.
Write Error : 0
Read Error : 0
Compare Error : 0
Current LBA : 17940484
Max LBA : 160086528
Progress : 11 %
Remain Time : 5h 59m 11s

Detailed description on each item on the screen

- Write Error: Number of write errors
- Read Error: Number of read errors
- Compare Error: Number of comparison errors
- Current LBA: The address during testing
- Max LBA: Highest address number of the HDD
- Progress: Percentage of test progress (%)
- Remain Time: Estimated time required for finishing the test across all sectors.
  Estimated time: 7 hours/80 GB

Diagnosis results

- If no error occurs in any of the Write/Read/Compare items, the HDD is in normal condition and is not required to be replaced. A block other than the HDD is in failure.
- If any error occurs, the HDD must be replaced.

To terminate the diagnostic program, press the "ESC" key.

7.1.9 SERVICE MODE FOR AMPLIFIER IN SUBWOOFER

[Purposes]
- Ignore whether Protection mode is activated.
- Even if the unit was automatically shut down after detecting that the Protection circuit had been activated in Normal mode, you can turn the unit on without waiting for one minute.
- Only this unit can be operated without the subwoofer. (The VOLUME operations can be performed.)

[How to enter]
① Plug the AC power cable while holding the OPEN/CLOSE and HDD/DVD keys of the unit pressed simultaneously.
② Then turn on the unit by pressing the STANDBY/ON key.

[How to quit]
- To quit Test mode, turn the unit off by pressing the STANDBY/ON key then unplug the AC power cable.

[Description of operation]

The indications displayed on the FL display when Test mode is entered differ according to whether the unit was previously turned off normally or the unit was shut down because the Protection circuit had been activated, as shown below:

[After the power was turned off normally]

[Indications]

POWER ON
⇩
Volume 0
⇩
HD SERVICE

[The power was shut down abnormality because of an abnormal detection from the Sub Woofer caused by outside factor. (Such as short + and – speaker cable)]

[Indications]

POWER ON
⇩
PRTCT WNG
⇩
HD SERVICE

[After the power was shut down because of a failure in the SW section]

[Indications]

POWER ON
⇩
PRTCT ERR
⇩
HD SERVICE

- Upon quitting Test mode, the unit initializes only the data on the protection error in RAM.

[Tips]

- Basically, operations in Test mode are the same as those in Normal mode. Depend on the current function, the indications on the FL are the following:

[Function]	[Indication]
HDD/DVD	HD SERVICE
TUNER	TX SERVICE
ANALOG	AN SERVICE
DIGITAL1	D1 SERVICE
DIGITAL2	D2 SERVICE

DSP error indication

- Each time the DISPLAY key on the remote control unit is pressed while the power is on, the DSP error indication and normal indication are switched alternately.

7.1.10 DSP TEST MODE

[Purposes]
- When there is malfunction about the sound, to confirm the error state of DSP circuit.

[Tools to be used]

Remote control unit supplied with the unit (AXD7401)

[How to enter]
① Plug the AC power cable while holding the OPEN/CLOSE and HDD/DVD keys of the unit pressed simultaneously.
② Then turn on the unit by pressing the STANDBY/ON key.
③ Press the DISPLAY key on the remote control unit.

[How to quit]
- To quit Test mode, turn the unit off by pressing the STANDBY/ON key then unplug the AC power cable.

[Specification of DSP error display]

FL OOOOOO-UM9

- 96k (This character is displayed while the source is 88.2 or 96kHz PCM.)
- DSP MUTE (This character is displayed while DSPMUTE is active.)
- DIR UNLOCK (This character is displayed while DIR*1 is UNLOCK.)
- Space
- The name of an error is displayed by six characters.

Example)

ERR. 0 DIRERR-UM

ERR. 1 DSPERR-UM

ERR. 2 HREQ -UM

ERR. 3 DSP NG-UM

ERR. 4 DMUTE - M

NO ERR DSP OK- 9
(The source is 88.2/96kHz.)

NO ERR DSP OK-

[Tips]

• DSP error message mode
Press the "DISPLAY" key in service test mode, to select the mode that DSP error messages are displayed.
Press the "DISPLAY" key again to select the normal service test mode.
For this reason, make the usual function of "display" not effective in the service test mode.
*1 DIR : One of the IC on the DSP assy
The inputted SPDIF signal is locked by DIR IC then, extract only the audio signal block from the SPDIF signal.

Detectable DSP Errors

Make sure to check the following three conditions in advance.

- Electric power is correctly supplied to DSP-assy.
- The SPDIF signal is coming to the input port of DIR (IC8201).
- There is no audio output from DSP-assy, or audio output is unusual.

* "U", "M" display below is a sample.
Those character display ON/OFF depends on the state.

• ERR_0 : –Cannot receive data from DIR– FL DIRERR-UM
→ Communication fault has occurred somewhere between DIR (IC8201 PinNo.32 CDTO)–Level Shifter (IC8702)– µ-com (IC5501 PinNo.58 DIRDO).
→ Communication fault has occurred somewhere between the µ- com-port (*1) which has sent the signal and each IC.

• ERR_1 : –Cannot receive data from DSP– FL DSPERR-UM
→ Communication fault has occurred somewhere between DSP (IC8501 PinNo.144 MISO)–Level Shifter (IC8702)–µ-com (IC5501 PinNo.24 DSPDO).
→ Communication fault has occurred somewhere between the µ-com-port (*1) which has sent the signal and each IC.
→ Communication fault has occurred somewhere between the DIR and DSP.

• ERR_2 : –There is no return value of HREQ.– FL HREQ -UM
→ Communication fault has occurred somewhere between DSP (IC8501 PinNo.3 HREQ)–Level Shifter (IC8702)–µ-com (IC5501 PinNo.59 DSPHREQ).
→ Communication fault has occurred somewhere between the µ-com-port (*1) which has sent the signal and each IC.
→ Communication fault has occurred somewhere between the DIR and DSP.

• ERR_3 : –ERR information from DSP– FL DSP NG-UM
→ Communication fault has occurred somewhere between the µ-com-port (*1) which has sent the signal and each IC. (especially the fault inside DSP)
→ Communication fault has occurred somewhere between the DIR and DSP.

• ERR_4 : –DECMUTE continues being LOW(MUTE).– FL DMUTE - M
→ Communication fault has occurred somewhere between DSP (IC8501 PinNo.21 PB12 MUTE)–Level Shifter (IC8702)–µ-com (IC5501 PinNo.60 DECMUTE).
→ Communication fault has occurred somewhere between the É com-port (*1) which has sent the signal and each IC.
→ Communication fault has occurred somewhere between the DIR and DSP.

Although the following are not errors, they are displayed separately and are helpful in finding a solution.

• INFO_0 : –DIRERR is HIGH (UNLOCK) in digital function.– FL DSP OK-UM
If DIRERR continues being HIGH (UNLOCK) without the above-mentioned error display.
→ Communication fault has occurred in somewhere between DIR (IC8201 PinNo.36 INT0)–Level Shifter (IC8702)–µ-com (IC5501 PinNo.57 DIRERR).

• INFO_1 : –DSPMUTE is LOW (MUTE).– FL DSP OK- M
If DSPMUTE continues being LOW (MUTE) without the above-mentioned error display.
→ Communication fault has occurred in somewhere between µ-com (PinNo.62 XDSPMUTE)–connector (CN8011 No.19 MUTEOUT).

• INFO_2 : –Loading 88.2kHz/96kHz PCM– FL DSP OK- 9
DSP function is limited when this information is displayed.

Notes :
Only the high priority error (near to ERR_0) is displayed when the multiplel errors have occurred.

When the analog audio output of a DSP module is unusual but the above error information is not displayed, the fault is probably in the CODEC IC (IC8401) and the peripheral circuits.
As the µ-com has not received data from the CODEC IC, it cannot detect the fault and display the error information.

*1 : μ-com-port which has sent the signal to IC

IC5501 μ-com port			IC8201 DIR port		IC8401 CODEC port	
Pin No.	Pin Name		Pin No.	Pin Name	Pin No.	Pin Name
No.25	DSPCLK	→	No.34	CCLK	No.42	CCLK
No.23	DSPDI	→	No.33	CDTI	No.43	CDTI
No.67	DIRCS	→	No.35	CSN	No.41	CSN
No.66	DIRRST	→	No.31	PDN	No.17	PDN

IC5501 μ-com port			IC8501 DSP port	
Pin No.	Pin Name		Pin No.	Pin Name
No.25	DSPCLK	→	No.1	SCK
No.23	DSPDI	→	No.143	MOSI
No.63	DSPSS	→	No.2	$\overline{SS}$
No.64	XDSPRST	→	No.44	$\overline{RESET}$
No.65	DSPMODE	→	No.137	MODA

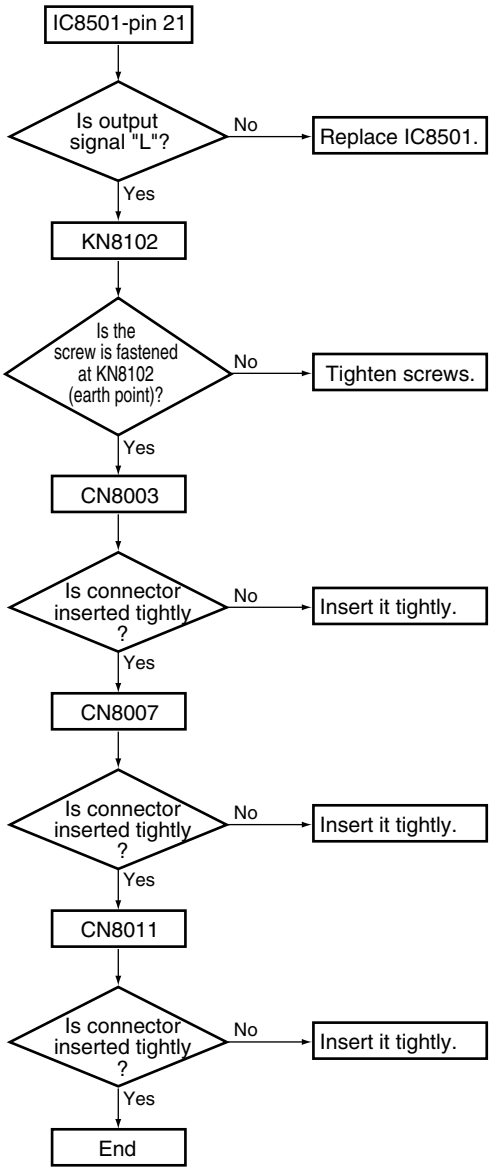
IC5501 μ-com port			IC8201 DIR port	
Pin No.	Pin Name		Pin No.	Pin Name
No.58	DIRDO	←	No.32	CDTO
No.57	DIRERR	←	No.36	INT0

IC5501 μ-com port			IC8501 DSP port	
Pin No.	Pin Name		Pin No.	Pin Name
No.24	DSPDO	←	No.144	MISO
No.59	DSPHREQ	←	No.3	HREQ
No.60	DECMUTE	←	No.21	PB12 MUTE

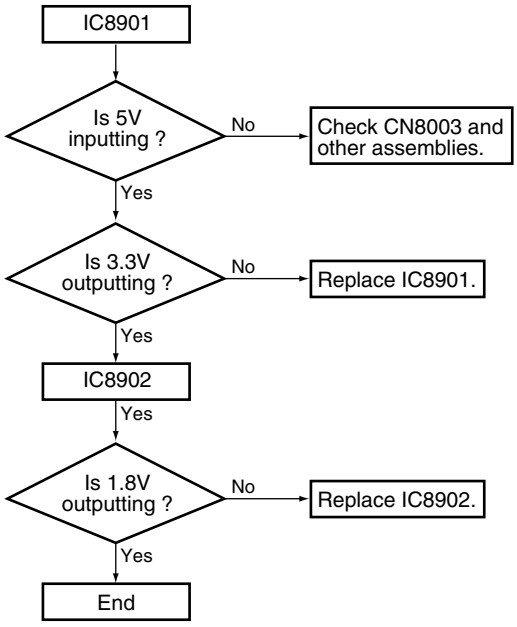
7.1.11 TROUBLE SHOOTING FOR DSP

[Case] When a sound is not out in the surround mode with the digital signal input.
• Suppose C,R parts to be poor contact and that is not damaged.

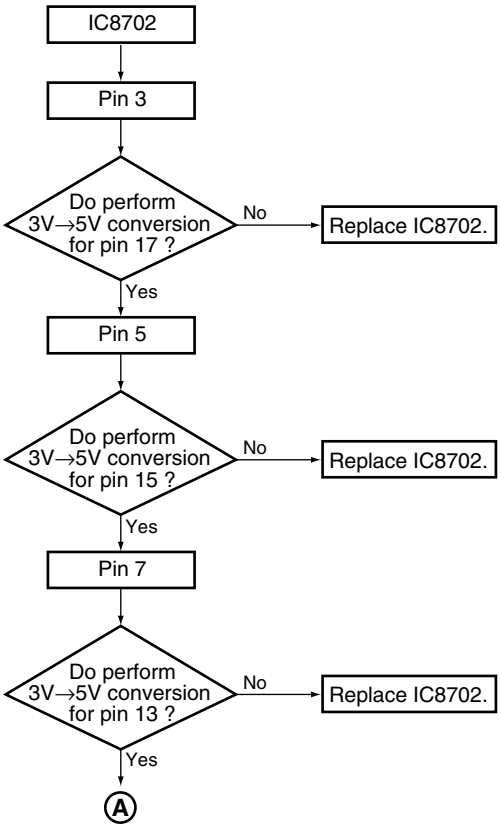
Step 1

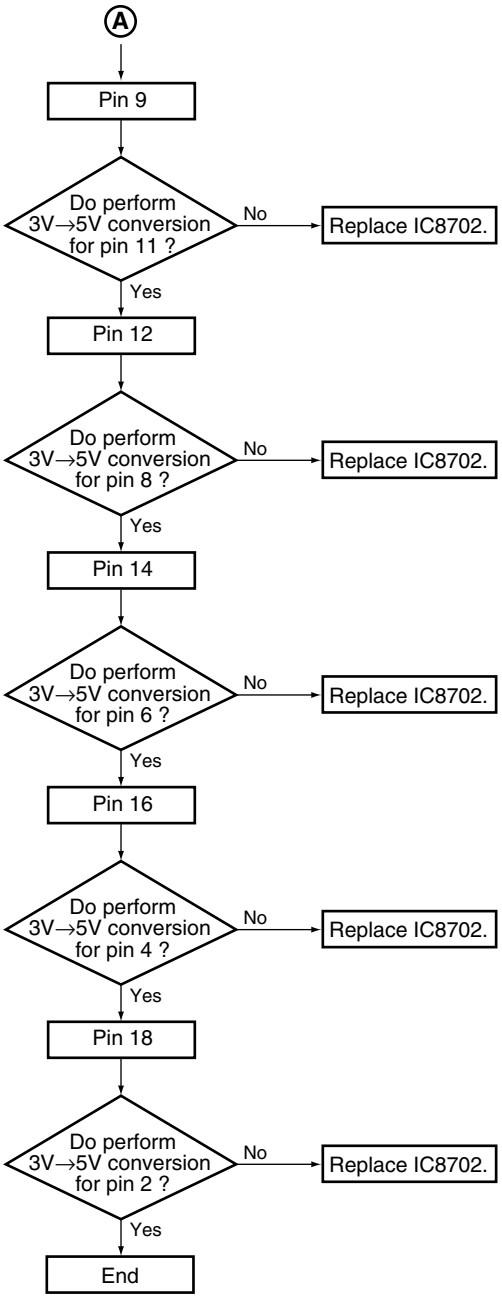


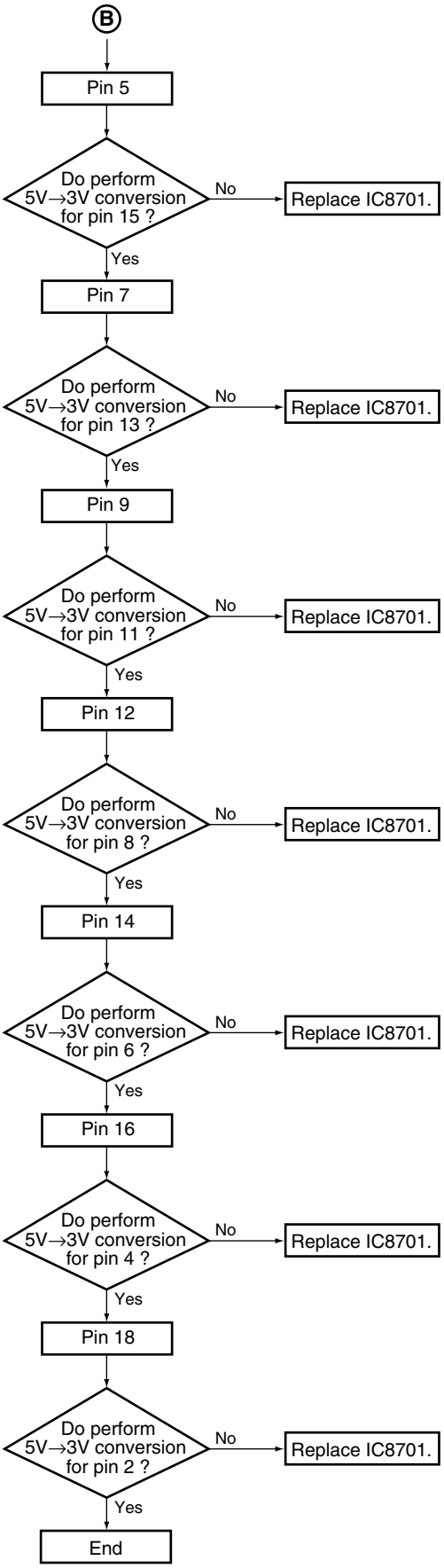
Step 2



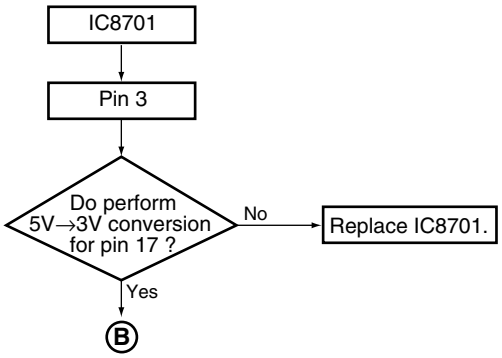
Step 3



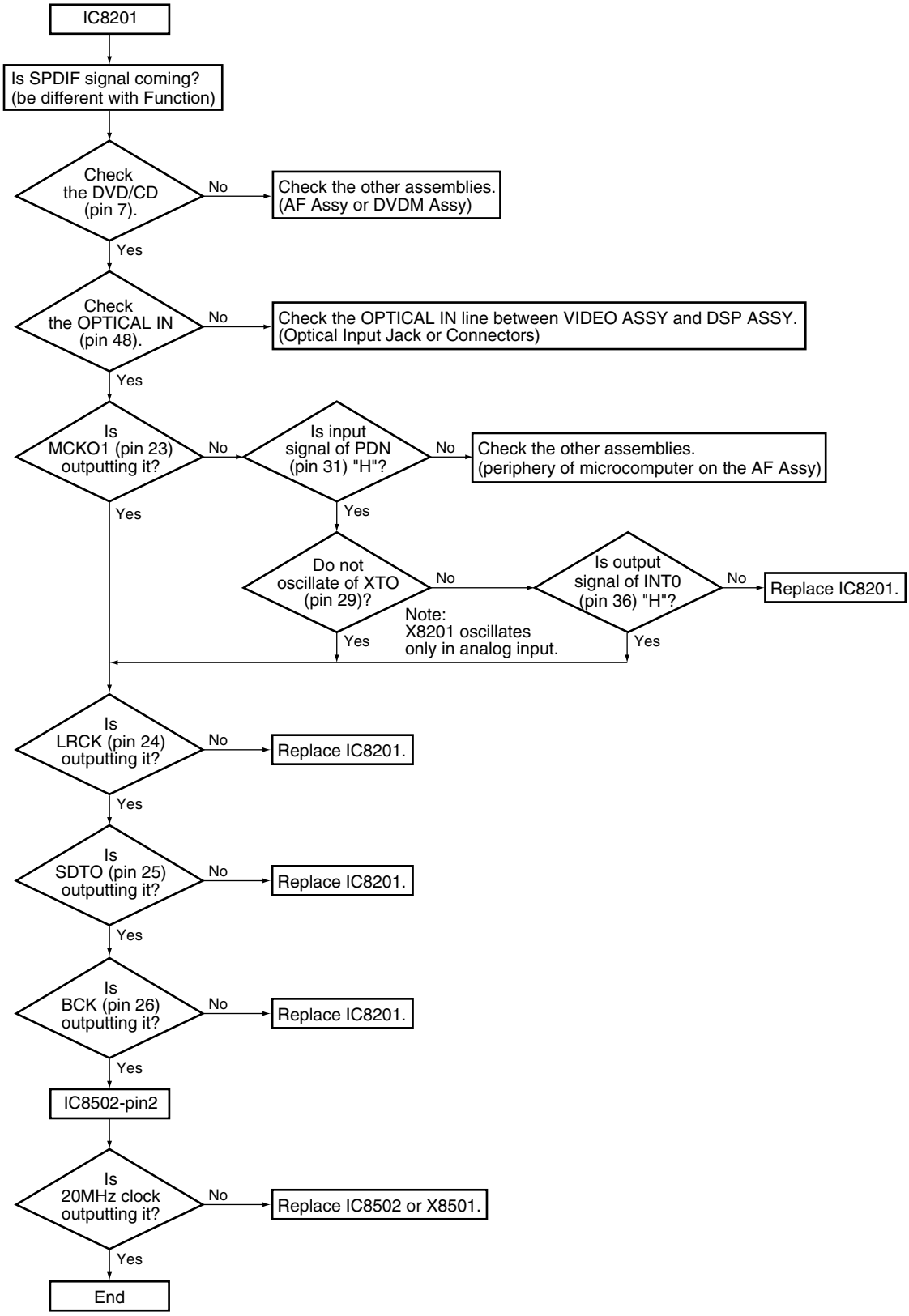

Ⓐ
Pin 9
Do perform 3V→5V conversion for pin 11 ?
No
Replace IC8702.
Yes
Pin 12
Do perform 3V→5V conversion for pin 8 ?
No
Replace IC8702.
Yes
Pin 14
Do perform 3V→5V conversion for pin 6 ?
No
Replace IC8702.
Yes
Pin 16
Do perform 3V→5V conversion for pin 4 ?
No
Replace IC8702.
Yes
Pin 18
Do perform 3V→5V conversion for pin 2 ?
No
Replace IC8702.
Yes
End


Ⓑ
Pin 5
Do perform 5V→3V conversion for pin 15 ?
No
Replace IC8701.
Yes
Pin 7
Do perform 5V→3V conversion for pin 13 ?
No
Replace IC8701.
Yes
Pin 9
Do perform 5V→3V conversion for pin 11 ?
No
Replace IC8701.
Yes
Pin 12
Do perform 5V→3V conversion for pin 8 ?
No
Replace IC8701.
Yes
Pin 14
Do perform 5V→3V conversion for pin 6 ?
No
Replace IC8701.
Yes
Pin 16
Do perform 5V→3V conversion for pin 4 ?
No
Replace IC8701.
Yes
Pin 18
Do perform 5V→3V conversion for pin 2 ?
No
Replace IC8701.
Yes
End

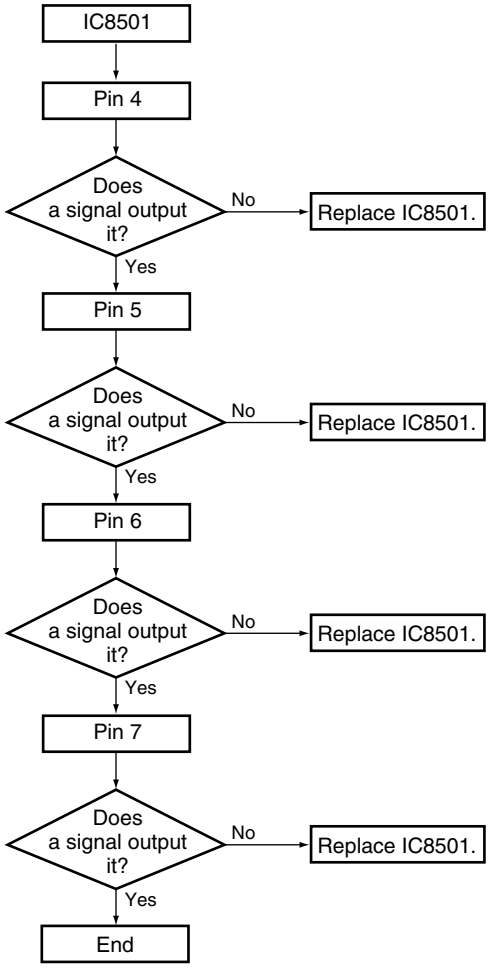
Step 4


IC8701
Pin 3
Do perform 5V→3V conversion for pin 17 ?
No
Replace IC8701.
Yes
Ⓑ

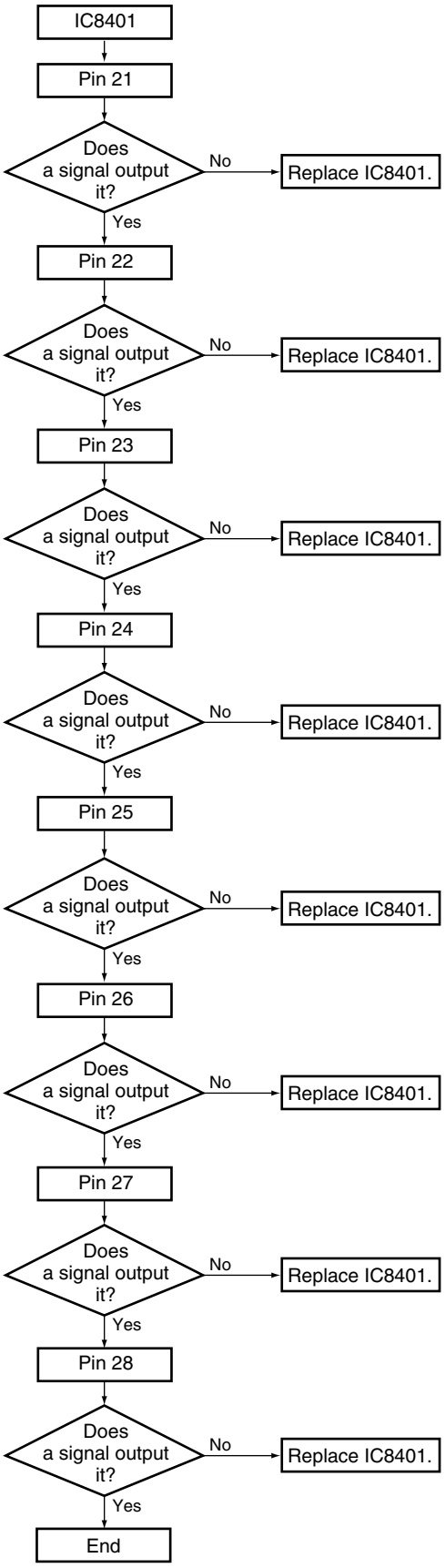
Step 5


IC8201
Is SPDIF signal coming? (be different with Function)
Check the DVD/CD (pin 7).
No
Check the other assemblies. (AF Assy or DVDM Assy)
Yes
Check the OPTICAL IN (pin 48).
No
Check the OPTICAL IN line between VIDEO ASSY and DSP ASSY. (Optical Input Jack or Connectors)
Yes
Is MCKO1 (pin 23) outputting it?
No
Is input signal of PDN (pin 31) "H"?
No
Check the other assemblies. (periphery of microcomputer on the AF Assy)
Yes
Yes
Do not oscillate of XTO (pin 29)?
No
Is output signal of INT0 (pin 36) "H"?
No
Replace IC8201.
Note: X8201 oscillates only in analog input.
Yes
Yes
Is LRCK (pin 24) outputting it?
No
Replace IC8201.
Yes
Is SDTO (pin 25) outputting it?
No
Replace IC8201.
Yes
Is BCK (pin 26) outputting it?
No
Replace IC8201.
Yes
IC8502-pin2
Is 20MHz clock outputting it?
No
Replace IC8502 or X8501.
Yes
End

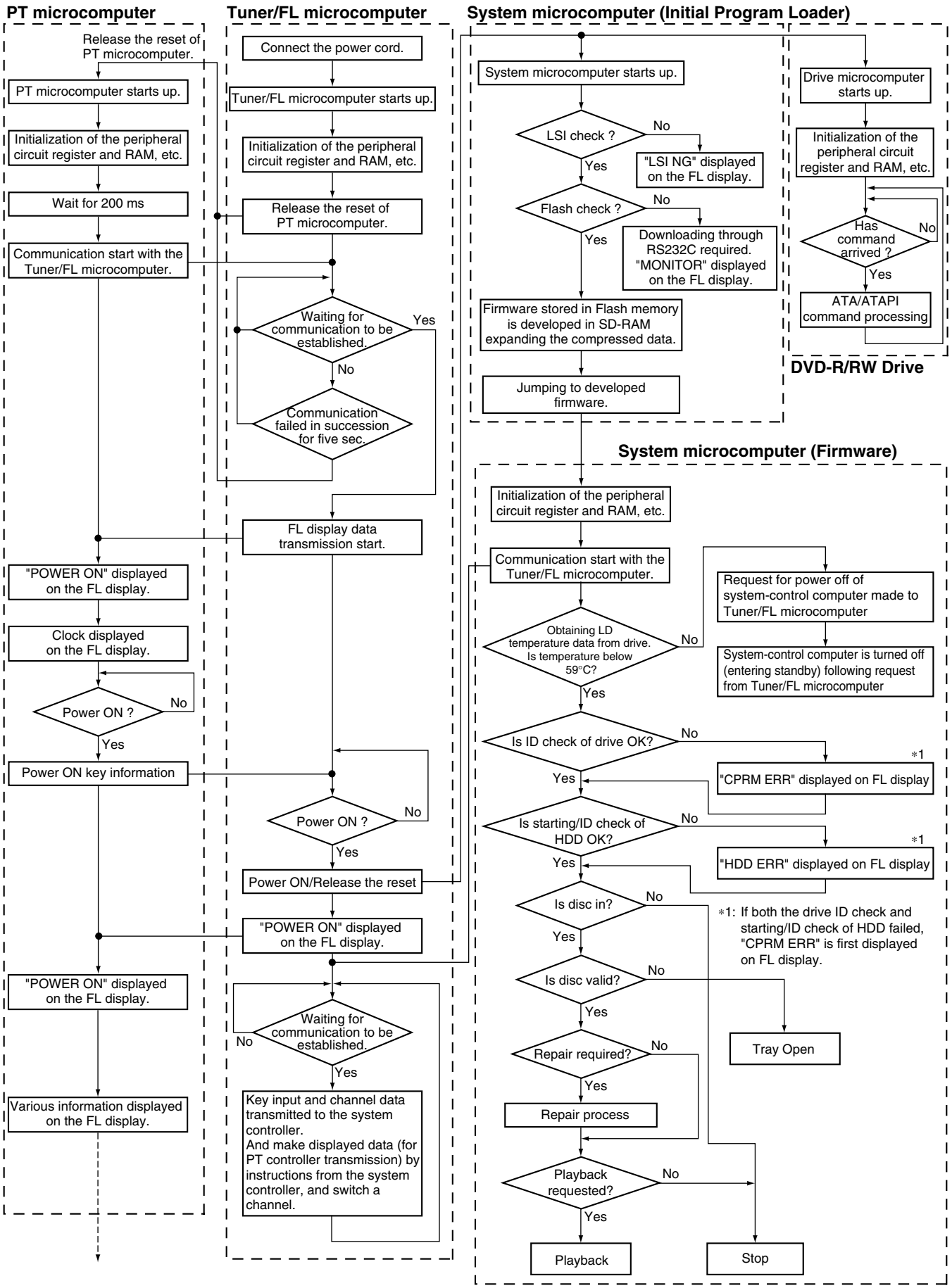
Step 6


IC8501
Pin 4
Does a signal output it?
No
Replace IC8501.
Yes
Pin 5
Does a signal output it?
No
Replace IC8501.
Yes
Pin 6
Does a signal output it?
No
Replace IC8501.
Yes
Pin 7
Does a signal output it?
No
Replace IC8501.
Yes
End

Step 7


IC8401
Pin 21
Does a signal output it?
No
Replace IC8401.
Yes
Pin 22
Does a signal output it?
No
Replace IC8401.
Yes
Pin 23
Does a signal output it?
No
Replace IC8401.
Yes
Pin 24
Does a signal output it?
No
Replace IC8401.
Yes
Pin 25
Does a signal output it?
No
Replace IC8401.
Yes
Pin 26
Does a signal output it?
No
Replace IC8401.
Yes
Pin 27
Does a signal output it?
No
Replace IC8401.
Yes
Pin 28
Does a signal output it?
No
Replace IC8401.
Yes
End

7.1.12 SETUP SEQUENCE


PT microcomputer
Tuner/FL microcomputer
System microcomputer (Initial Program Loader)
Release the reset of PT microcomputer.
PT microcomputer starts up.
Initialization of the peripheral circuit register and RAM, etc.
Wait for 200 ms
Communication start with the Tuner/FL microcomputer.
"POWER ON" displayed on the FL display.
Clock displayed on the FL display.
Power ON ?
No
Yes
Power ON key information
"POWER ON" displayed on the FL display.
Various information displayed on the FL display.
Connect the power cord.
Tuner/FL microcomputer starts up.
Initialization of the peripheral circuit register and RAM, etc.
Release the reset of PT microcomputer.
Waiting for communication to be established.
Yes
No
Communication failed in succession for five sec.
FL display data transmission start.
Power ON ?
No
Yes
Power ON/Release the reset
"POWER ON" displayed on the FL display.
Waiting for communication to be established.
No
Yes
Key input and channel data transmitted to the system controller.
And make displayed data (for PT controller transmission) by instructions from the system controller, and switch a channel.
System microcomputer starts up.
LSI check ?
No
Yes
"LSI NG" displayed on the FL display.
Flash check ?
No
Yes
Downloading through RS232C required.
"MONITOR" displayed on the FL display.
Firmware stored in Flash memory is developed in SD-RAM expanding the compressed data.
Jumping to developed firmware.
Drive microcomputer starts up.
Initialization of the peripheral circuit register and RAM, etc.
Has command arrived ?
No
Yes
ATA/ATAPI command processing
DVD-R/RW Drive
System microcomputer (Firmware)
Initialization of the peripheral circuit register and RAM, etc.
Communication start with the Tuner/FL microcomputer.
Obtaining LD temperature data from drive. Is temperature below 59°C?
No
Yes
Request for power off of system-control computer made to Tuner/FL microcomputer
System-control computer is turned off (entering standby) following request from Tuner/FL microcomputer
Is ID check of drive OK?
No
Yes
*1
"CPRM ERR" displayed on FL display
Is starting/ID check of HDD OK?
No
Yes
*1
"HDD ERR" displayed on FL display
Is disc in?
No
Yes
Is disc valid?
No
Yes
Tray Open
Repair required?
No
Yes
Repair process
Playback requested?
No
Yes
Playback
Stop
*1: If both the drive ID check and starting/ID check of HDD failed, "CPRM ERR" is first displayed on FL display.

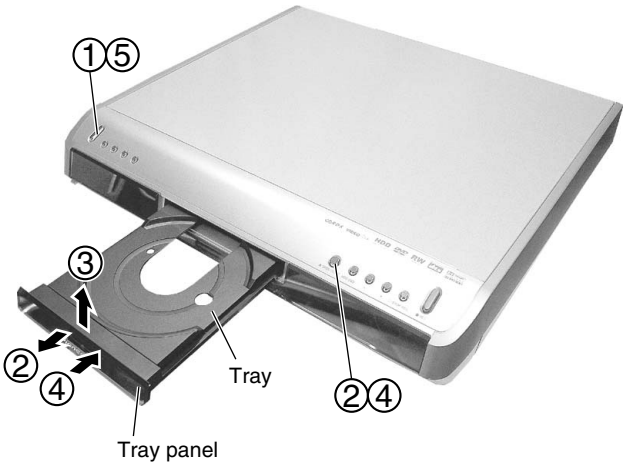
7.1.13 DISASSEMBLY

Note 1 : Even if the unit shown in the photos and illustrations in this manual may differ from your product, the procedures described here are common.
Note 2 : For performing the diagnosis shown below, the following jigs for service are required:
• Jig cable : GGD1315 (×2)

Diagnosis of the MAIN Assy

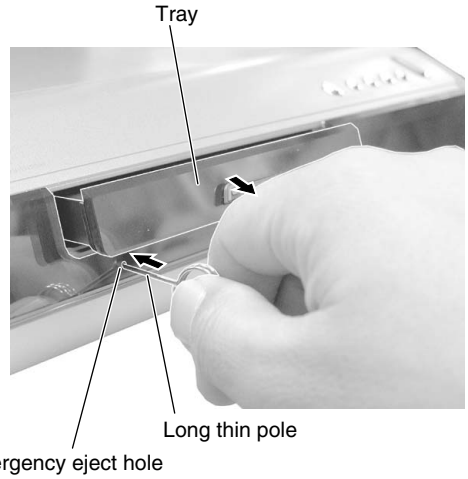
1 Tray panel

① Press the ⏻ STANDBY/ON button to turn on the power.
② Press the ⏏ OPEN/CLOSE button to open the tray.
③ Remove the tray panel.
④ Press the ⏏ OPEN/CLOSE button to close the tray.
⑤ Press the ⏻ STANDBY/ON button to turn off the power.



● How to open the tray when the power cannot be on

When the player cannot eject tray due to power failure or any other reasons, use a long thin pole and push the emergency eject hole under the tray panel to eject.
If the tray pops out a little, fully pull it out by a hand.

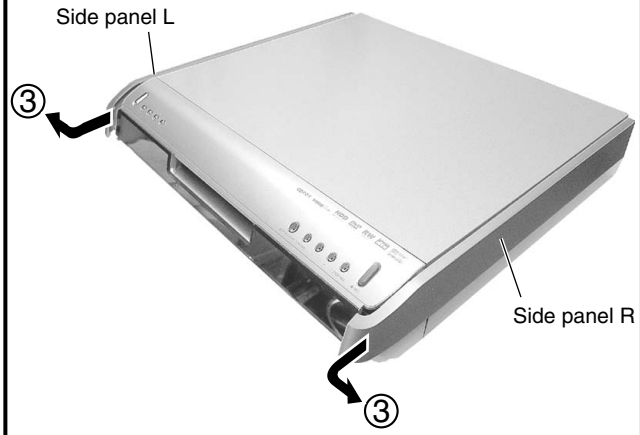


2 Side panel L, R and Bonnet case

① Remove the two screws.
② Remove the five screws.

• Rear view

③ Remove the side panel L and R.

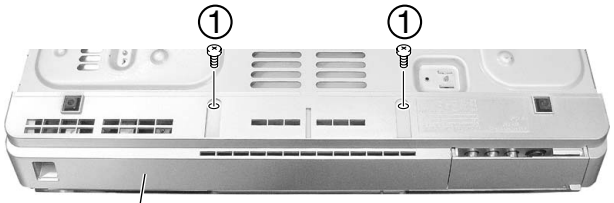


④ Remove the four screws.

⑤ Remove the bonnet case.

3 Front panel section

① Remove the two screws.

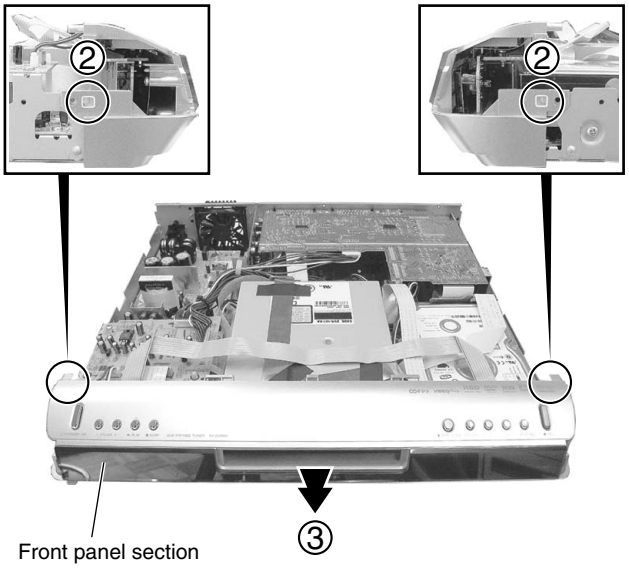


• **Bottom view**

Front panel section

② Unhook the two hooks.

③ Remove the front panel section

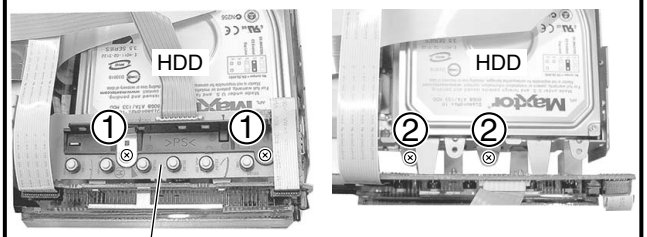


Front panel section

4 HDD section

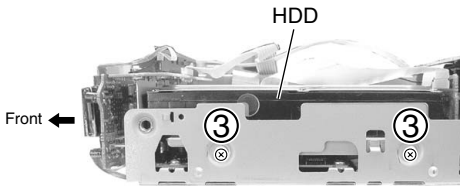
① Remove the KEY R Assy by removing the two screws.

② Remove the two screws.



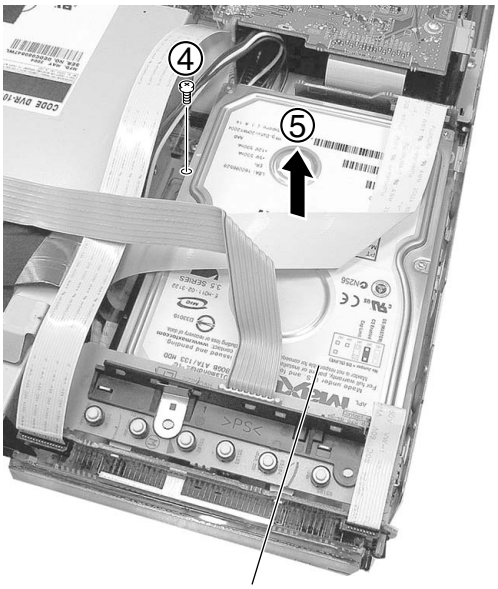
KEY R Assy

③ Remove the two screws.



④ Remove the one screw.

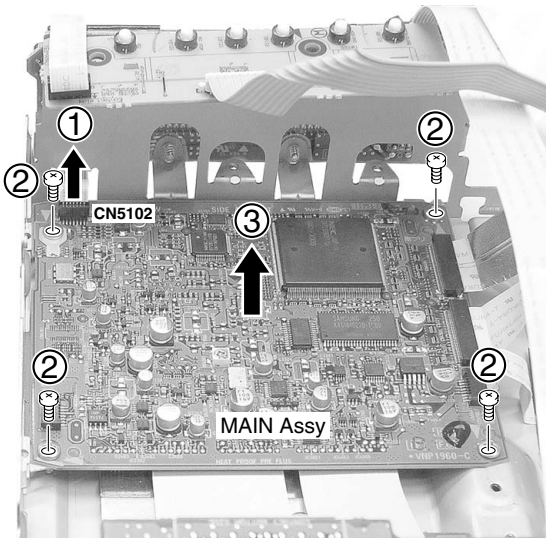
⑤ Remove the HDD with HDD base.



HDD

5 MAIN Assy

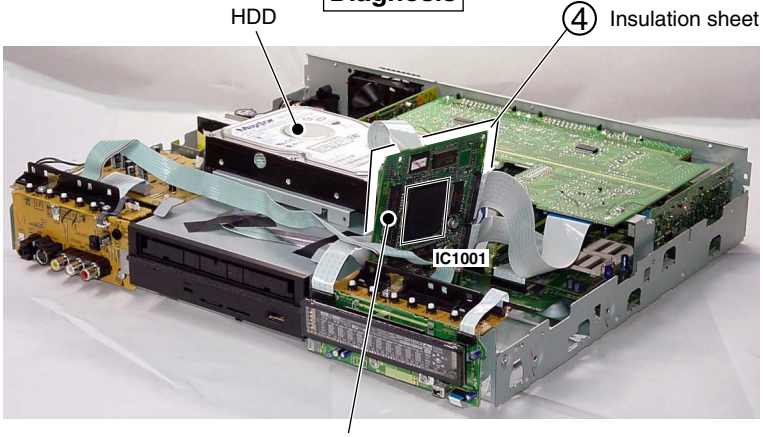
① Disconnect the one connector.
② Remove the four screws.
③ Stand the MAIN Assy.



• **Rear view**

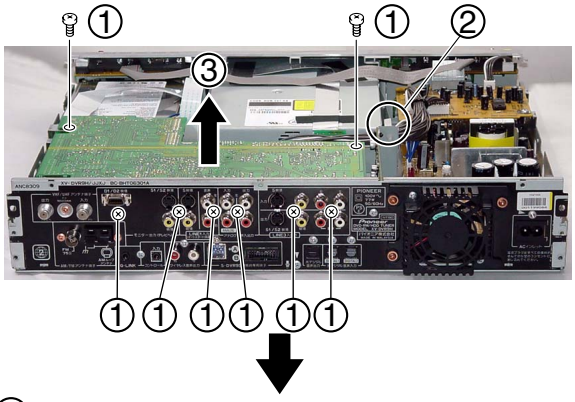
④ Insert the insulation sheet between the MAIN Assy and HDD.
⑤ Arrange the unit as shown in the photo below.

Diagnosis



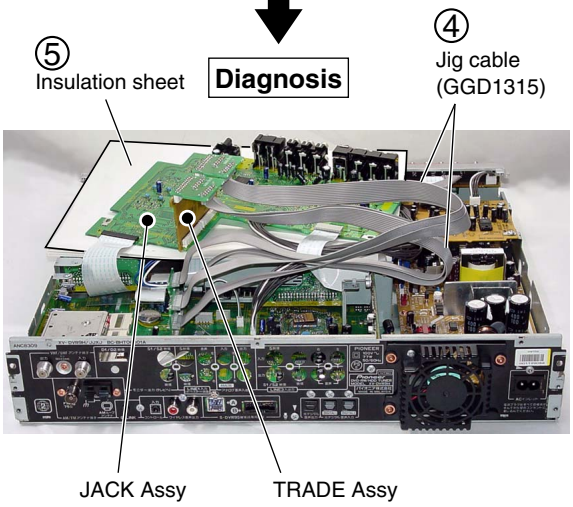
6 JACK Assy

① Remove the seven screws.
② Remove the wires from Wire Saddle.
③ Remove the JACK Assy and TRADE Assy.



④ Connect the jig cable.
⑤ Insert the insulation sheet between the JACK Assy and DRIVE Assy R7.
⑥ Arrange the unit as shown in the photo below.

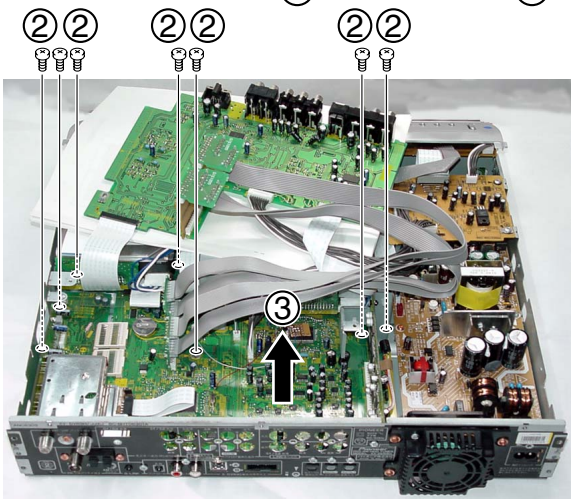
Diagnosis



Caution :
Main IC (IC1001) on the MAIN Assy generate heat to arround 80 degrees. Be careful when works.

7 CONTROL Assy

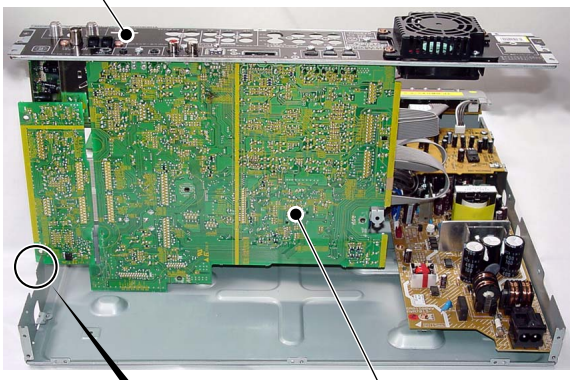
① Remove the two screws.
② Remove the seven screws.

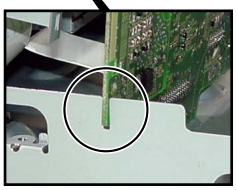


③ Stand the CONTROL Assy.
④ Arrange the unit as shown in the photo below.

Rear Panel

Diagnosis

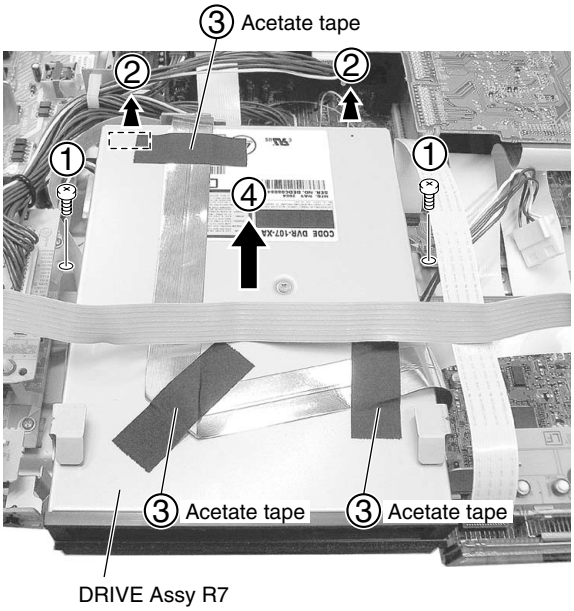




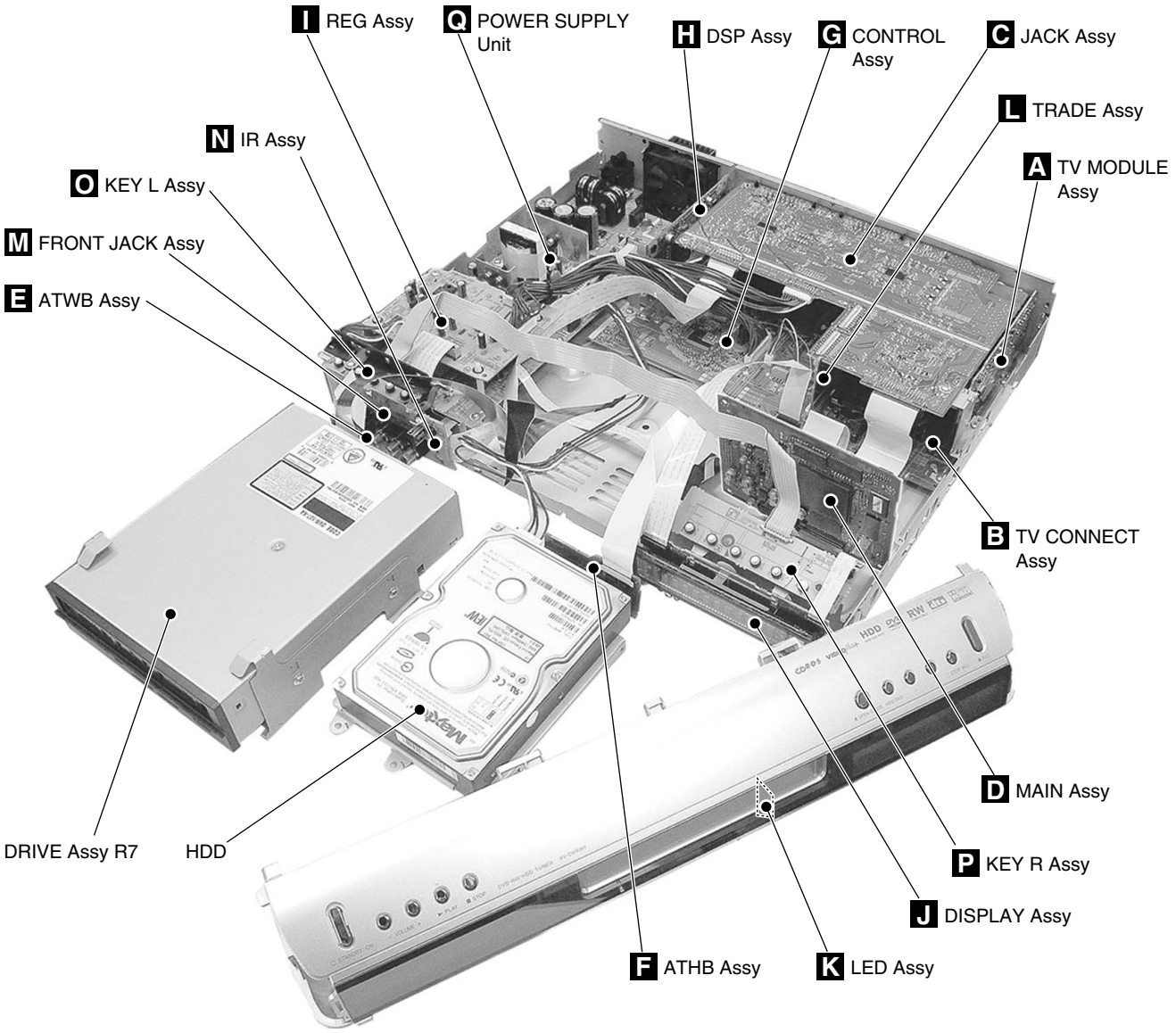
CONTROL Assy

8 DRIVE Assy R7 (DVD-R/RW Writer)

① Remove the two screws.
② Disconnect the two connectors.
③ Remove the three acetate tapes.
④ Remove the DRIVE Assy R7.

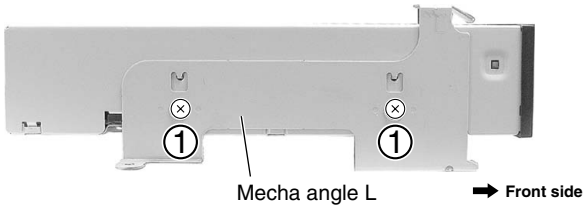


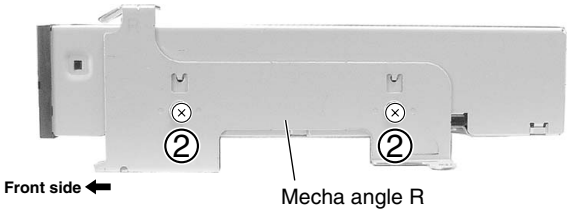
PCB Location



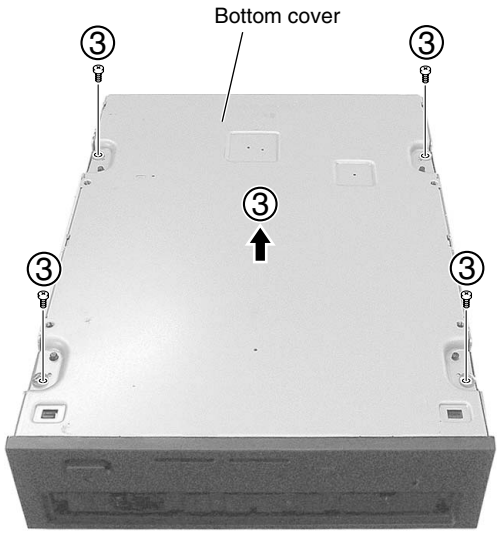
Cleaning the pickup lens

① Remove the mecha angle L by removing the two screws.
② Remove the mecha angle R by removing the two screws.



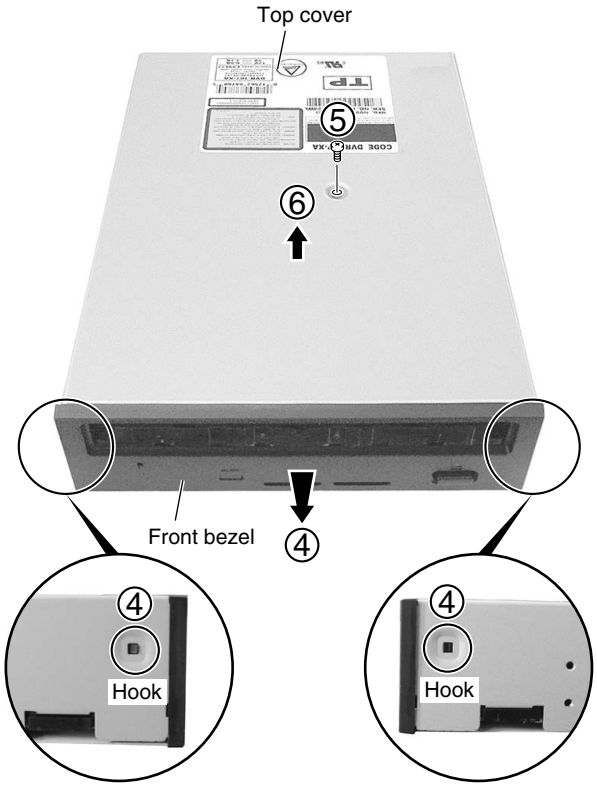


③ Remove the bottom cover by removing the four screws.



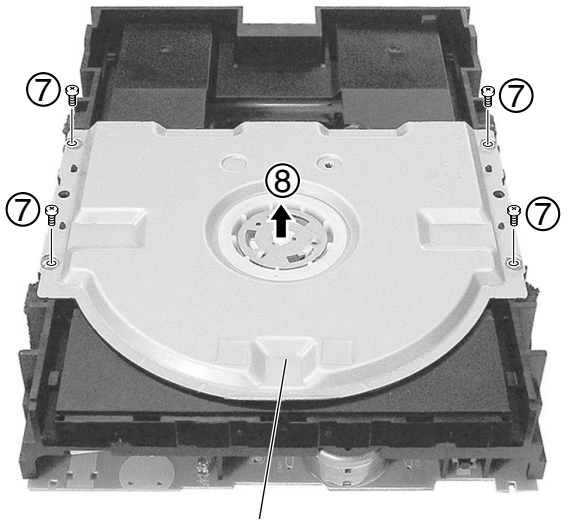
● **Bottom view**

④ Remove the front bezel by unhooking the two hooks.
⑤ Remove the one screw.
⑥ Remove the top cover.



⑦ Remove the four screws.

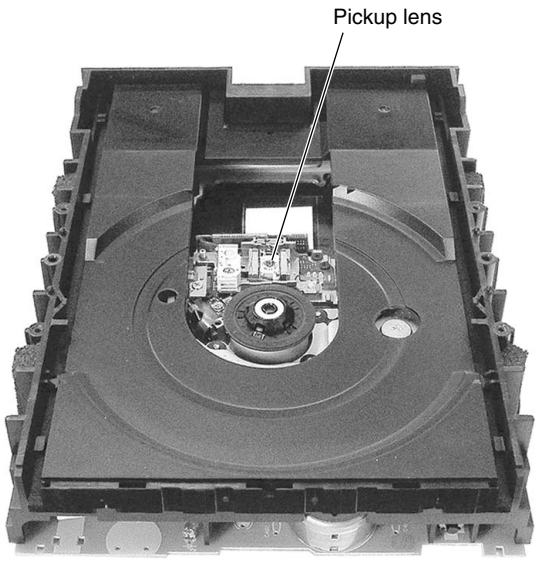
⑧ Remove the clamper section.



⑨ Clean the pickup lens.

Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools :

Cleaning liquid : GEM1004
Cleaning paper : GED-008



7.2 PARTS
7.2.1 IC

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

● **List of IC**

PEG045A-K, PDC117B-K, TDA9818TS, RS5C372A, LC75342M, LA73033M, AK5357VT, PST3428U, PST3809U, M65673WG-A, UPD72852AGB-8EU, UPD72893AGD-LML

■ PEG045A-K (CONTROL ASSY: IC801)

• TUFL Microcomputer

● **Pin Function**

No.	Pin Name	Signal Name	I/O	Function
1	P95/ANEX0/CLK4	XSCK_TTOA	O	Communication line of AMP controller (clock)
2	P94/DA1/TB4in	SYNC	I	C-Sync of input video (for Auto-Rec video judgement)
3	P93/DA0/TB3in	AVLINKIN	I	Input line of NextViewLink (Not use)
4	P92/TB2in/Sout3	IR	I	Pulse input of remote control (no input signal for system product)
5	P91/TB1in/Sin3	J_CLOCK	I	Input audio for Just clock (pulse input of tuner audio) (Not use)
6	P90/TB0in/CLK3	SYNCAFT	I	C-Sync of input video
7	BYTE	BYTE	I	Pull-down
8	CNVss	PGM	I	Communication line L: Normal, H: Download
9	P87/XCin	NC	(O)	
10	P86/XCout	LATCH_D	O	Communication line of AMP controller (Latch)
11	-RESET	XRESETIN	I	Microcomputer reset L: Reset, H: Normal
12	Xout	XOUT	O	
13	Vss	GND	–	Ground
14	Xin	XIN	I	
15	Vcc	VCC	–	Power supply
16	P85/-NMI	NMI	I	Pull-up
17	P84/-INT2	JOGA	I	Phase VOL input (Not use)
18	P83/-INT1	SLICEONFB	I	Feedback from SLICEON pin
19	P82/-INT0	XINTRA	I	Alarm/interval interruption
20	P81/TA4in	LED_HDD	(O)	HDD LED LED ON with H active at HDD (NC)
21	P80/TA4out	LED_DVD	(O)	DVD LED LED ON with H active at HDD (duty 100%) (NC)
22	P77/TA3in	PSAVE_MUTE	O	For noise suppression when controlling SCART power (L: Mute ON, H: Mute OFF)
23	P76/TA3out	FANPWM	O	FAN power control High speed: H fixed, Low speed: 39kHz, Stop: L fixed (NC)
24	P75/TA2in	GLINK IN	(O)	(NC)
25	P74/TA2out	GLINK OUT	(O)	(NC)
26	P73/-CTS2/-RTS2/TA1in	NC	(O)	
27	P72/CLK2/TA1out	AVLINKOUT	O	Output line of NextViewLink (NC)
28	P71/RxD2/SCL/TA0in/TB5in	SCL	I/O	I2C communication (clock) Nch open-drain
29	P70/TxD2/SDA/TA0out	SDA	I/O	I2C communication (data) Nch open-drain
30	Vss2	GND	–	Ground
31	LP2	LP2	O	
32	LP3	LP3	O	
33	LP4	LP4	O	
34	Vdd2	VDD2	–	Power supply
35	M2	M2	I	Mode switch L: Normal, H: Download
36	M1	M1	I	Pull-down
37	P11/SLICEON	SLICEON	O	Slicer operating signal
38	P67/TxD1	TXD	O	Communication line for firmware download/monitor
39	P66/RxD1	RXD	I	Communication line for firmware download/monitor

No.	Pin Name	Signal Name	I/O	Function
40	P65/CLK1	SCLK	(O)	Communication line for firmware download/monitor
41	P64/-CTS1/-RTS1/CLKS1	BUSY	O	Communication line for firmware download/monitor
42	P63/TxD0	SSTTOM	O	System controller communication line (Tuner → Main)
43	P62/RxD0	SSMTOT	I	System controller communication line (Main → Tuner)
44	P61/CLK0	SCK	I	System controller communication line (clock)
45	P60/-CTS0/-RTS0	HSTTOM	O	Tuner → System handshake
46	P57/-RDY/CLKout	DLCONT	O	Voltage supply SW of FLASH-ROM writing L=Download, H=Normal operation
47	P56/ALE	WRT	O	Write signal
48	P55/-HOLD	SDAEEP	I/O	SDA line for EEPROM
49	P54/-HLDA	SCLEEP	O	SCL line for EEPROM
50	P53/BCLK	VOLCE	O	Communication line CE
51	P52/-RD	VOLDATA	O	Communication line DATA
52	P51/-WRH/-BHE	VOLCLK	O	Communication line CLK
53	P50/-WRL/-WR	DLCE	I	Signal for serial I/O mode selection (10k ohm pulled-up)
54	P47/-CS3	NC	(O)	
55	P46/-CS2	NC	(O)	
56	P45/-CS1	NC	(O)	
57	P44/-CS0	BLANK	I	BLANK signal input (Not use)
58	P43/A19	XTHROU	O	Through control of SCART1/2 L=Through, H=Connect to TV (NC)
59	P42/A18	NC	(O)	
60	P41/A17	EXTRGB	O	
61	P40/A16	SWVION	O	Independent source SW for video I/O output circuit L=OFF, H=Power ON
62	P37/A15	SWSTBY	O	Standby mode of video input selector L=Normal, H=Standby mode
63	P36/A14	NC	(O)	
64	P35/A13	BS15SRT	I	
65	P34/A12	SCTHRU	O	(NC)
66	P33/A11	NC	(O)	
67	P32/A10	NC	I	S terminal detection of Video input 3
68	P31/A9	SDET2	I	S terminal detection of Video input 2
69	Vcc	VCC	–	Power supply
70	P30/A8	NC	I	S terminal detection of Video input 1
71	Vss	GND	–	Ground
72	P27/A7	DDL_INFO1	O	DISC DOWNLOAD information
73	P26/A6	DDL_INFO2	O	DISC DOWNLOAD information
74	P25/A5	DDL_INFO3	O	DISC DOWNLOAD information
75	P24/A4	NC	(O)	
76	P23/A3	P_SAVEBS	O	RF through output switch L=Through OFF, H=Through ON
77	P22/A2	NC	(O)	
78	P21/A1	NC	(O)	
79	P20/A0	P_CONT	O	System Power ON L=Standby, H=Power ON
80	P17/D15/-INT5	HSATOT	I	Amp → Tuner handshake

No.	Pin Name	Signal Name	I/O	Function
81	P16/D14/-INT4	HSMTOT	I	SYS → Tuner handshake
82	P15/D13/-INT3	DCTRI	I	Change detection of audio condition
83	P14/D12	NC	(O)	
84	P13/D11	SU/SAPID	I	J: Bilingual detection, US: SAP detection
85	P12/D10	ST/STID	I	J: Stereo detection, US: Stereo detection (STID)
86	P11/D9	XRESET	O	System Reset output L=Reset, H=Normal
87	P10/D8	LDASH	O	ColorSystem distinction signal L=Others, H=L'
88	P07/D7	STBYQ	O	EU multiplex decoder standby mode L=Standby, H=Power ON
89	P06/D6	LM/	O	ColorSystem distinction signal L=Others, H=L/L' (for EU); M/N (for IBD)
90	P05/D5	I/BG	O	ColorSystem distinction signal L=Others, H=I
91	P04/D4	XP_SAVE	O	Power save control (SCART) L=Power save (thru OFF), H=Normal (thru ON) (NC)
92	P03/D3	TUON	O	Tuner power L=Standby, H=Power ON
93	P02/D2	NC	(O)	
94	P01/D1	RSTCTL	O	Reset signal mask from the system controller
95	P00/D0	XRST_TTOA	O	Reset output to Amp controller
96	P107/AN7/-KI3	MODEL1	A/D IN	Input for destination judgment
97	P106/AN6/-KI2	MODEL2	A/D IN	Input for destination judgment
98	P105/AN5/-KI1	AGC	A/D IN	Field intensity detection
99	P104/AN4/-KI0	FUNC	A/D IN	Function signal input (No use)
100	P103/AN3	KEY2	A/D IN	Main unit key input (No use)
101	P102/AN2	KEY1	A/D IN	Main unit key input (No use)
102	P101/AN1	C/N	A/D IN	
103	Avss	GND	–	Ground
104	P100/AN0	AFT	A/D IN	AFT voltage input
105	VREF	VREF	–	Reference voltage
106	AVcc	AVCC	–	Power supply
107	P97/-ADTRG/Sin4	SSATOT	I	Communication line of Amp controller (AMP → Tuner)
108	Vdd1	VDD1	–	Power supply
109	SYNCIN	SYNCTEXT	I	Video input for sync. sep.
110	SVREF	SLICE	I	Slice level input
111	Vss1	GND	–	Ground
112	Vdd3	VDD3	–	Power supply
113	CVIN1	CVIN1	I	Video input for teletext
114	Vss3	GND	–	Ground
115	FSCIN	FSCIN	I	Fsc input
116	P96/ANEX1/Sout4	SSTOA	O	Communication line of Amp controller (Tuner → AMP)

PDC117B-K (CONTROL ASSY: IC5501)

• PT Microcomputer

● Pin Function

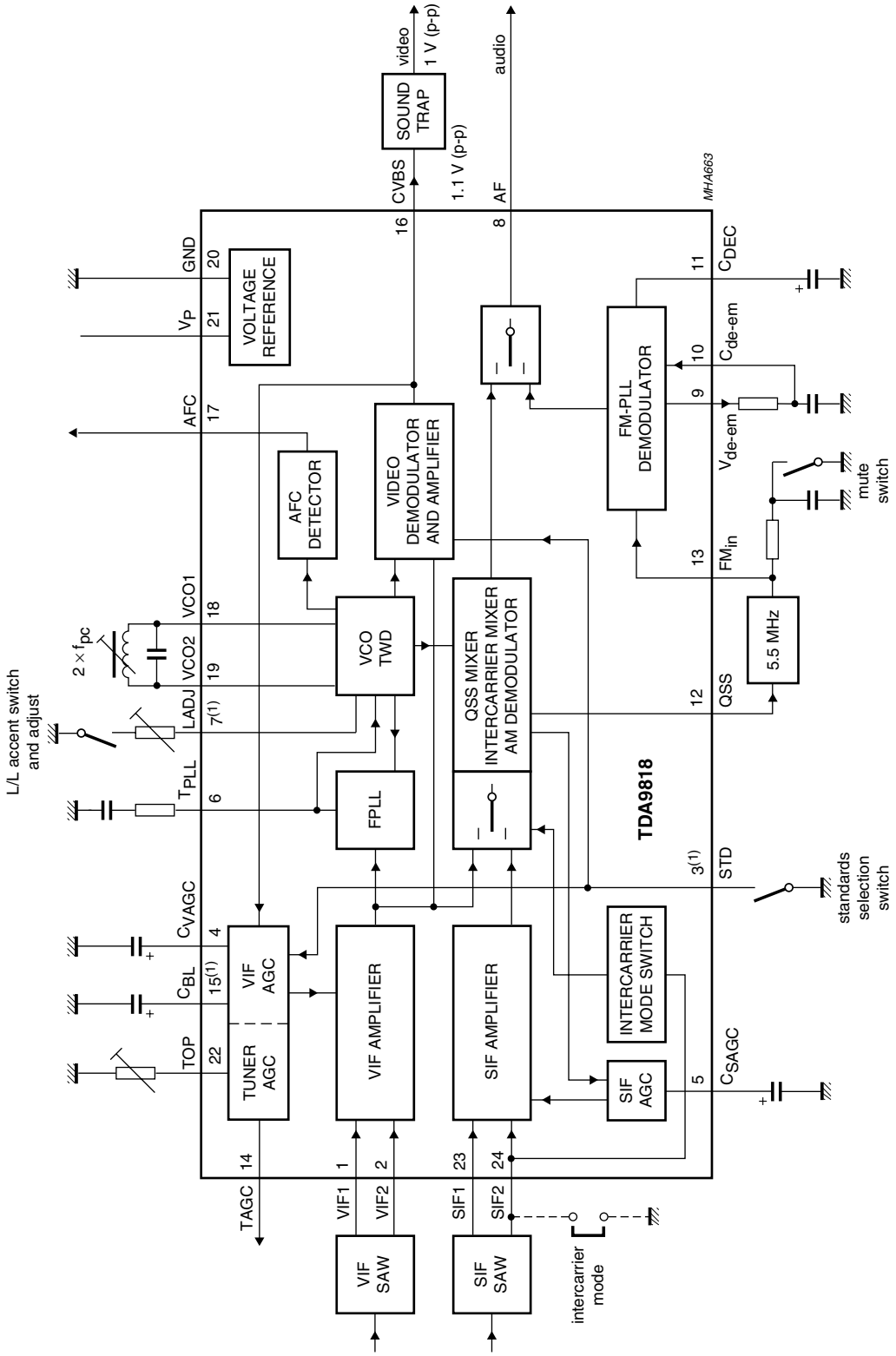
No.	Pin Name	Signal Name	I/O	Function
1	PA3	ATT6dB	O	Control ATT 6dB for AUDIO IN
2	PA4	ATT10dB	O	Control ATT 10dB for AUDIO IN
3	PA5	NC	O	
4	P70/INT0/T0LCP/AN8	XPDOWNDET	I	Power failure detection input(Interruption)
5	P71/INT1/T0HCP/AN9	XWMUTE	O	WIRE LESS MUTE request
6	P72/INT2/T0IN	RDSCLK	I(O)	Clock input from RDS decoder (without RDS: Low output)
7	P73/INT3/T0IN	REMOCON	I	REMOCON signal input(Interruption)
8	RES#	XRESET	I	Microcomputer reeset input
9	XT1/AN10	XT1	–	(When this port don't use, please connect VDD)
10	XT2/AN11	XT2	–	(When this port don't use, please set open)
11	VSS1	VSS1	–	Ground
12	CF1	CF1	–	
13	CF2	CF2	–	
14	VDD1	VDD1	–	Power supply
15	P80/AN0	SIMUKE	I	Destination distinction input
16	P81/AN1	NC	O	
17	P82/AN2	NC	O	
18	P83/AN3	KEY1	I	Key1 input
19	P84/AN4	KEY2	I	Key2 input
20	P85/AN5	NC	O	
21	P86/AN6	(TEMP)	O	
22	P87/AN7	XPROTECT	I	Protection and Fan Error detection input
23	P10/SO0	DSPDI	O	Data output to DSP (MOTOROLA) and DIR
24	P11/SI0/SB0	DSPDO	I	Data input from DSP (MOTOROLA)
25	P12/SCK0	DSPCLK	O	Clock output to DSP (MOTOROLA) and DIR
26	P13/SO1	FLCS	O	Chip enable for FL driver
27	P14/SI1/SB1	FLDAT	O	Data for FL driver & LED DRIVER
28	P15/SCK1	FLCLK	O	Clock for FL driver & LED DRIVER
29	P16/T1PWML	LATCH	I	DVDRW LATCH input
30	P17/T1PWMH/BUZ	HPDET	I	Detect to insert headphone
31	PE0	XRDY	O	DVDRW XRDY output
32	PE1	XAVOUTMUTE	O	AV OUTPUT AUDIO MUTE ON/OFF
33	PE2	STEST	I	Set SERVICE TEST MODE for service (Perform the LINE TEST MODE with remote control unit)
34	PE3	UTEST	I	Set UNITCHECK for checker
35	PE4	XHPMUTE	O	HP MUTE ON/OFF
36	PE5	XRECMUTE	O	AUIDIO OUTPUT MUTE ON/OFF
37	PE6	MUTEMASK1	O	EURO SCART AV1 AUDIO OUT MUTE MASK
38	PE7	MUTEMASK2	O	EURO SCART AV2 AUDIO OUT MUTE MASK
39	VSS4	VSS4	–	Ground
40	VDD4	VDD4	–	Power supply

No.	Pin Name	Signal Name	I/O	Function
41	PF0	LED BLUE	O	BLUE LED
42	PF1	LED AMB	O	AMBER LED
43	PF2	RYR	O	REAR RELAY ON/OFF
44	PF3	RYFSC	O	FRONT/SW/CENTER RELAY ON/OFF
45	PF4	XFLRST	O	Reset for FL driver
46	PF5	FLPOW	O	FL power sw control
47	PF6	(SYSPOW)	O	
48	PF7	DTSDMIX	O	Cntrol of gain-up for dts down-mix
49	SI2P0/SO2	SO	O	DVDRW data output (AMP side output)
50	SI2P1/SI2/SB2	SI	I	DVDRW data input (AMP side input)
51	SI2P2/SCK2	XSCK	I	DVDRW clock input
52	SI2P3/SCK20	SWFMIX	O	Control for subwoofer mix
53	PWM1	NC	–	
54	PWM0	FANCONT	O	fan control1
55	VDD2	VDD2	–	Power supply
56	VSS2	VSS2	–	Ground
57	P00	DIRERR	I	LOCK/UNLOCK from DIR
58	P01	DIRDO	I	Data input from DIR
59	P02	DSPHREQ	I	Error detection from DSP (MOTOROLA)
60	P03	DECMUTE	I	Detection of 1stDSP boot success from DSP MODULE
61	P04	XTL0	O	Selection X'tal to DIR
62	P05/CKO	XDSPMUTE	O	MUTE requeat to DSP MODULE
63	P06/T6O	DSPSS	O	Slave selection to DSP (MOTOROLA)
64	P07/T7O	XDSPRST	O	RESET to DSP (MOTOROLA) MODULE
65	P20/INT4/T1IN	DSPMODE	O	MODE selection(ROM/RAM) to DSP(MOTOROLA)
66	P21/INT4/T1IN	DIRRST	O	Reset to DIR
67	P22/INT4/T1IN	DIRCS	O	Chip select to DIR
68	P23/INT4/T1IN	XSWDET	I	SW DETECT
69	P24/INT5/T1IN	(FANERR)	I	(STANDBY) Fan Error detection input
70	P25/INT5/T1IN	(FANCONT)	O	fan control1
71	P26/INT5/T1IN	BEATCUT2	O	BEATCUT Control 2
72	P27/INT5/T1IN	DLINF1	I	Download Information1
73	P30/PWM4	DLINF2	I	Download Information2
74	P31/PWM5	DLINF3	I	Download Information3
75	P32/UTX1	SR+Tx	O	UART Tx of SR+ function
76	P33/URX1	SR+Rx	I	UART Rx of SR+ function
77	P34/UTX2	BEATCUT1	O	BEATCUT Control 1
78	P35/URX2	DIGSEL	O	SW for Digital 1/2 select
79	P36	SWPOW	O	SW power sw control
80	PB7	TXCLK	O	Clock for tuner LSI
81	PB6	TXODATA	O	Data for tuner LSI

No.	Pin Name	Signal Name	I/O	Function
82	PB5	WSEL	O	WIRE LESS OUTPUTSELECT
83	PB4	TXCE	O	Chip enable for tuner LSI
84	PB3	RDSPOW	O	Control power supply of RDS (L: POWER ON)
85	PB2	XSWPOWDET	I	SW POWER DETECT (L: SW POWER DETECT)
86	PB1	RDSDATA	I(O)	Input RDS data (without RDS : Low output)
87	PB0	TXIDATA	I	Input data from tuner LSI
88	VSS3	VSS3	–	Ground
89	VDD3	VDD3	–	Power supply
90	PC7	XMUTEC	O	Cch MUTE ON/OFF
91	PC6	INPUTSELB	O	AUDIO INPUT SELECT B
92	PC5	INPUTSELA	O	AUDIO INPUT SELECT A
93	PC4	DIMMER	O	Control for DIMMER
94	PC3	XSYSMUTE	O	Control mute of system
95	PC2	(VOLMUTE)	O	(Mute for E-vol IC) (STANDBY)
96	PC1	VOLCLK	O	Clock for E-vol IC/HP-vol IC/Wireless-vol IC
97	PC0	VOLDATA	O	Data for E-vol IC/HP-vol IC/Wireless-vol IC
98	PA0	FLASHE/D	–	for FLASH writing
99	PA1	FLASHDO	–	for FLASH writing
100	PA2	FLASHCLK	–	for FLASH writing

TDA9818TS (TV MODULE ASSY : IC302)

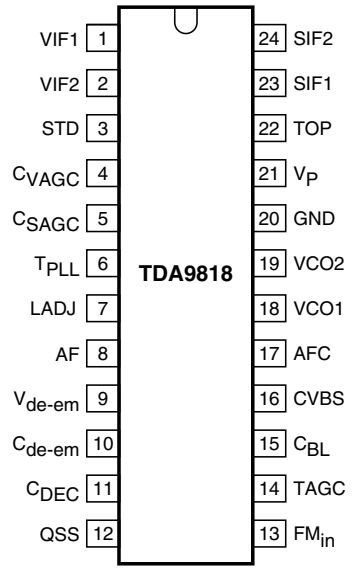
• VIF/SIF IC



● PIN FUNCTION

SYMBOL	PIN	DESCRIPTION
VIF1	1	VIF differential input signal voltage 1
VIF2	2	VIF differential input signal voltage 2
STD	3	standards selection switch; note 1
C_{VAGC}	4	VIF AGC capacitor
C_{SAGC}	5	SIF AGC capacitor
T_{PLL}	6	PLL filter
LADJ	7	L/L accent switch and adjust
AF	8	audio output
$V_{de\text{-}em}$	9	de-emphasis output
$C_{de\text{-}em}$	10	de-emphasis input
C_{DEC}	11	decoupling capacitor
QSS	12	single reference QSS/intercarrier output voltage
FM_{in}	13	sound intercarrier input voltage
TAGC	14	tuner AGC output
C_{BL}	15	black level detector
CVBS	16	composite video output voltage
AFC	17	AFC output
VCO1	18	VCO1 resonance circuit
VCO2	19	VCO2 resonance circuit
GND	20	ground
V_P	21	supply voltage
TOP	22	tuner AGC takeover point adjust
SIF1	23	SIF differential input signal voltage 1
SIF2	24	SIF differential input signal voltage 2

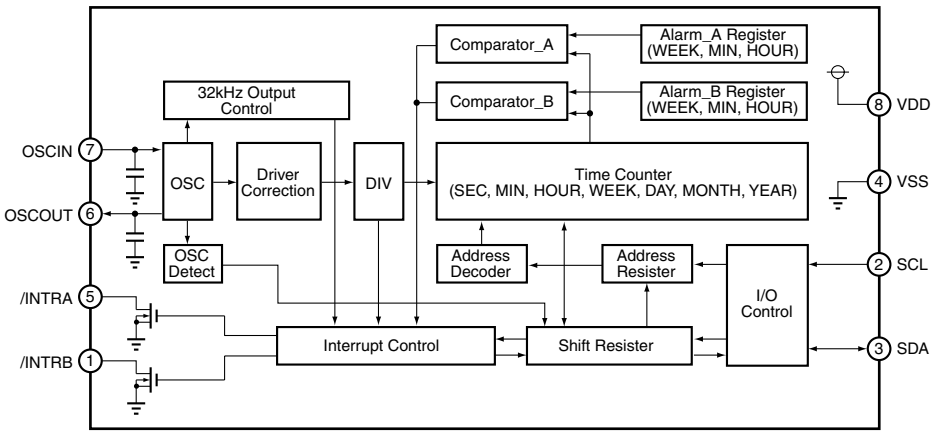
● PIN LAYOUT



■ RS5C372A (CONTROL ASSY : IC802)

• Real Time Clock IC

● Block Diagram



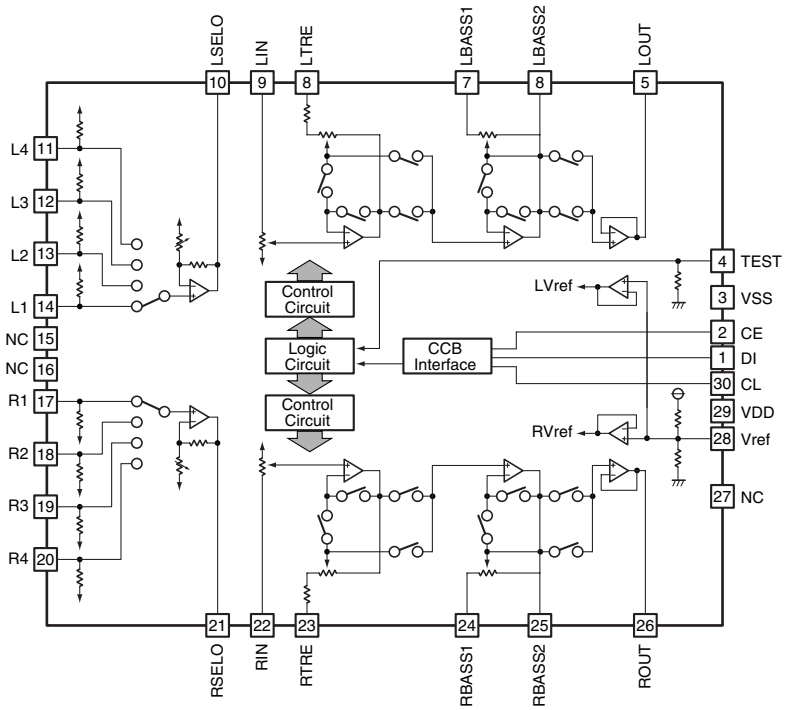
● Pin Function

No.	Pin Name	I/O	Function	
1	/INTRB	O	Interruption output B The output of 32.768kHz (in 32768Hz crystal use), cycled interrupt for CPU, or output alarm interrupt (ALARM_B). This pin output 32.768kHz when activated power from 0V. Nch open drain output.	
2	SCL	I	Shift clock input Synchronize with this clock, and input and output data from a SDA terminal. Exceed VDD, and can input to 6V.	
3	SDA	I/O	Serial input and output Synchronize with SCL, and input and output writing data or readout data. Exceed VDD, and can input to 6V. Nch open drain output in the output.	
4	VSS	–	Ground pin	
5	/INTRA	O	Interruption output A Cycled interrupt for CPU, or output alarm interruption (ALARM_A, ALARM_B). This pin becomes an OFF state when activated power from 0V. N ch open drain output.	
6	OSCOUT	O	Oscillation circuit output	Connect a crystal resonator of 32.768kHz or 32.000kHz between OSCIN and OSCOUT, and constitute oscillation circuit. (component parts of oscillation circuit except crystal resonator have it built-in.)
7	OSCIN	I	Oscillation circuit input	
8	VDD	–	Positive supply input	

LC75342M (JACK ASSY : IC601)

• Electric Volume IC

● Block Diagram



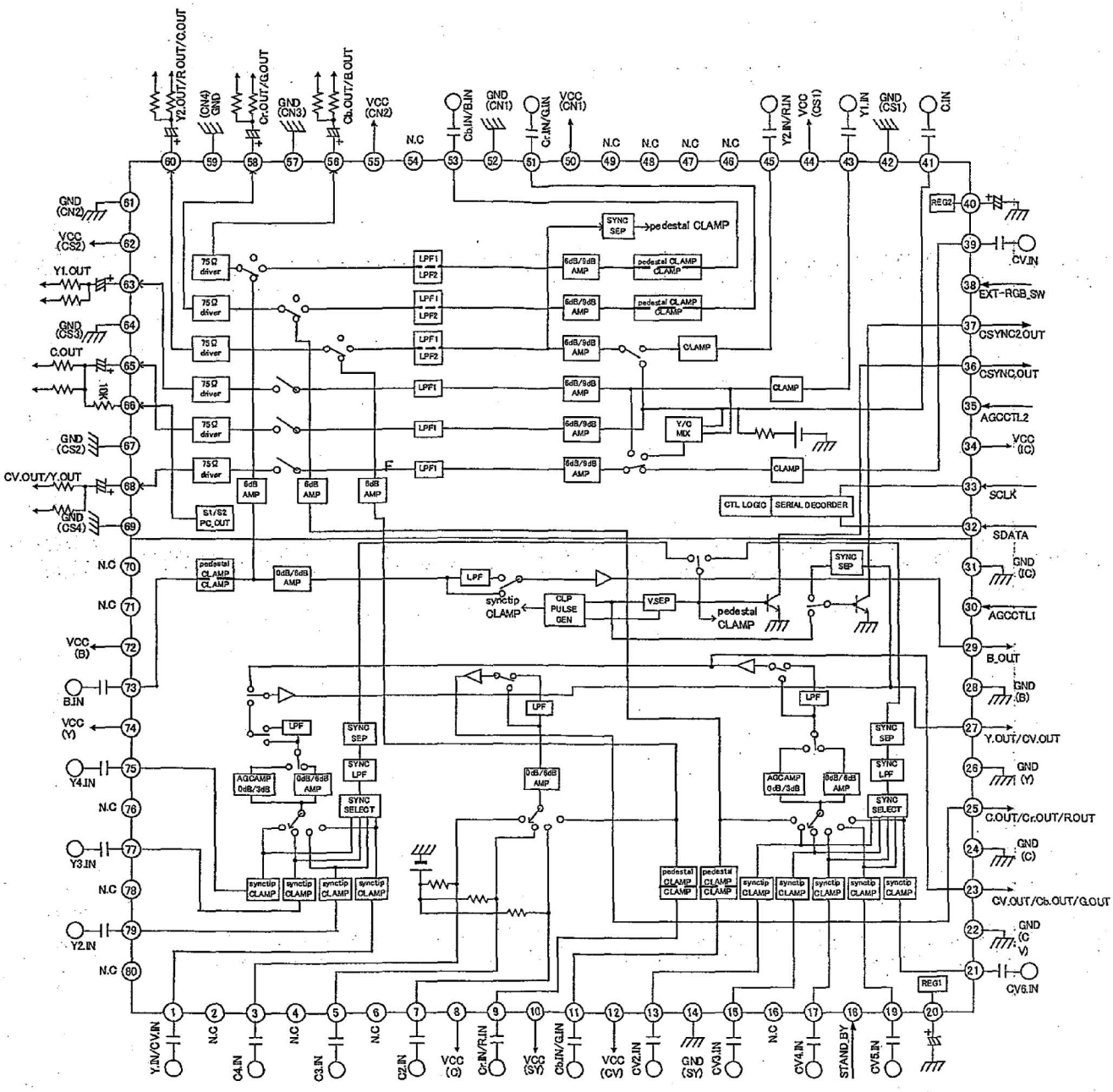
● Pin Function

No.	Pin Name	Function	No.	Pin Name	Function
1	DI	Serial data input for control	16	NC	Not connected
2	CE	Chip enable pin Data are written in the internal latch by a timing of "H" → "L", and each analog switch works. Data transfer is enabled by "H" level.	17	R1	Input signal pin
3	VSS	Ground pin	18	R2	
4	TEST	Pin for electronic volume test Set to VSS electric potential.	19	R3	
5	LOUT	Volume and equalizer output pin	20	R4	
6	LBASS2	Capacitor and resistor connection pins for bus bandpass filter	21	RSELO	Input selector output pin
7	LBASS1		22	RIN	Volume and equalizer input pin
8	LTRE	Capacitor connection pin for treble bandpass filter	23	RTRE	Capacitor connection pin for treble bandpass filter
9	LIN	Volume and equalizer input pin	24	RBASS1	Capacitor and resistor connection pins for bus bandpass filter
10	LSELO	Input selector output pin	25	RBASS2	
11	L4	Input signal pins	26	ROUT	Volume and equalizer output pin
12	L3		27	NC	Not connected
13	L2		28	Vref	0.5XVDD voltage generation block
14	L1		29	VDD	Power supply pin
15	NC	Not connected	30	CL	Clock input pin for control

■ LA73033M (JACK ASSY : IC701)

• Video selector and Video driver

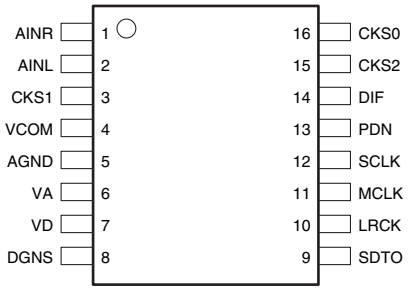
● Block Diagram



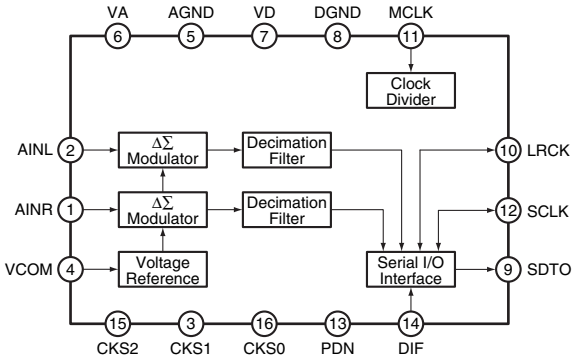
■ AK5357VT (MAIN ASSY : IC3101)

• 96kHz 24 bit ΔΣ ADC

● Pin Arrangement (Top view)



● Block Diagram



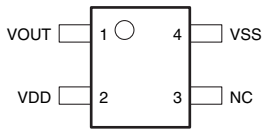
● Pin Function

No.	Pin Name	I/O	Function
1	AINR	I	R ch analog input
2	AINL	I	L ch analog input
3	CKS1	I	Mode select 1
4	VCOM	O	Common voltage output, bias voltage of VA/2 and ADC input
5	AGND	–	Analog ground
6	VA	–	Analog power supply, 2.7 to 5.5V
7	VD	–	Digital power supply, 2.7 to 5.5V
8	DGND	–	Digital ground
9	SDTO	O	Audio serial data output, outputs "L" in the power down mode.
10	LRCK	I/O	Channel clock I/O, outputs "L" by master mode in the power down mode.
11	MCLK	I	Master clock input
12	SCLK	I/O	Audio serial data clock, outputs "L" by master mode in the power down mode.
13	PDN	I	Power down mode "H": power up, "L": power down
14	DIF	I	Audio interface format, "H" : 24 bit I2S compatibility, "L" : 24 bit MSB justify
15	CKS2	I	Mode select 2
16	CKS0	I	Mode select 0

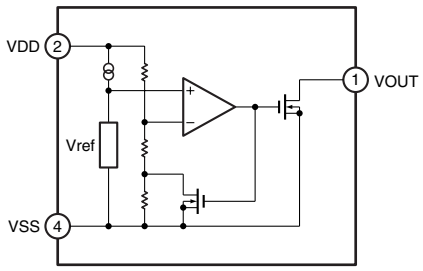
PST3428U (MAIN ASSY : IC4003)

• Reset IC

● Pin Arrangement (Top view)



● Block Diagram



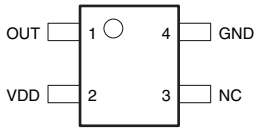
● Pin Function

No.	Pin Name	Function
1	VOUT	Reset signal output
2	VDD	Power supply / voltage detection
3	NC	Not connected
4	VSS	VSS

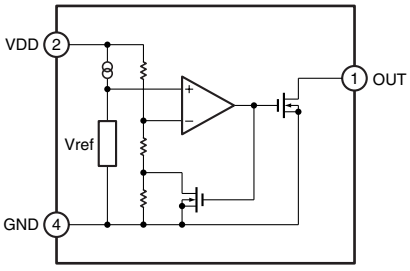
PST3809U (MAIN ASSY : IC4005)

• Reset IC

● Pin Arrangement (Top view)



● Block Diagram



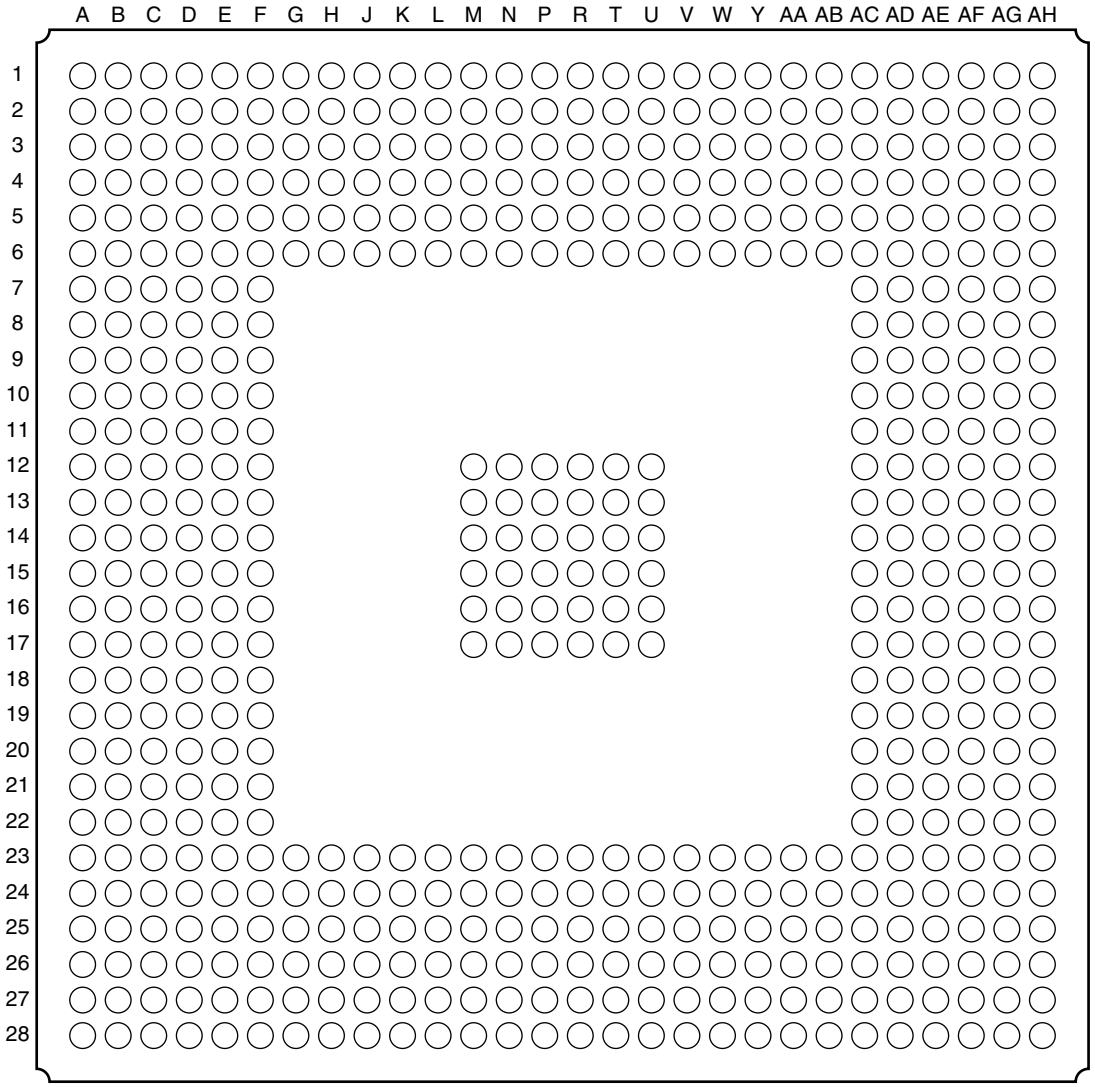
● Pin Function

No.	Pin Name	Function
1	OUT	Reset signal output
2	VDD	Power supply / voltage detection
3	NC	Not connected
4	GND	Ground

■ M65673WG-A (MAIN ASSY : IC1001)

• Signal Processing IC for DVD Recorder

● Pin Arrangement (Top view)



● I/O buffer list

Buffer Name	Main Function	Remarks
PDIDGZ	Input buffer (5V tolerant)	
PDUDGZ	Input buffer (5V tolerant), pull-up	
PDDDGZ	Input buffer (5V tolerant), pull-down	
PDO04CDG	Output buffer, 4mA	
PDO08CDG	Output buffer, 8mA	
PDO0204DGZ	Output buffer, 2/4mA	
PDO0406DSGZ	Output buffer, 4/6mA	For SDRAM IF
PDO0406DSGZ×2	Output buffer, 8/12mA	For SDRAM IF
PDT0204DGZ	3 state output buffer, 2/4mA	
PDB04DGZ	Bidirectional buffer, 4mA	
PDB08DGZ	Bidirectional buffer, 8mA	
PDB0204DGZ	Bidirectional buffer, 2/4mA	
PDB0406DSGZ	Bidirectional buffer, 4/6mA	For SDRAM IF

● Pin Name list

	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T	U	V	W	Y	AA	AB	AC	AD	AE	AF	AG	AH	
28	VDD	EDATA[23]	EDATA[22]	EDATA[20]	EDATA[18]	EDATA[16]	EADRS[0]	EBS[0]	ERAS	EDQM	EDATA[6]	EDATA[3]	EDATA[0]	AVDDAD8	BG8	VRB8	AVDDAD8	VRM10	AVDDAD10	PACKETEN	WM2DTO[2]	VDD	WMCLKO	WM1DTO[4]	WM1DTI[1]	WM1DTI[3]	HKEYPLS	VDD	28
27	AT1DATA[12]	EDATA[24]	EDATA[25]	EDATA[21]	EDATA[19]	EDATA[17]	EADRS[1]	EBS[1]	ECS	EWE	EDATA[7]	EDATA[4]	EDATA[1]	AVSSAD8	GIN	VRT8	DVSSAD10	CVBSIN	VBGR10	STREAM	WM2DTO[4]	WM2DTO[6]	WM1DTO[1]	WM1DTO[6]	WM1DTI[4]	PEDCTL	REC656O[1]	REC656O[3]	27
26	AT1DATA[8]	AT1DATA[13]	AT1DATA[15]	EDATA[26]	EDATA[29]	EDATA[30]	EADRS[2]	EADRS[10]	EADRS[11]	ECAS	EDATA[8]	EDATA[5]	EDATA[2]	DVSSAD8	CRIN	CIN	VRBD10	VRT10	NBC10	SYNC	WM2DTO[3]	WM1DTO[0]	WM1DTO[5]	WM1DTI[2]	WM1DTI[7]	ACCCTL	REC656O[2]	AVDD2DA10	26
25	AT1DATA[7]	AT1DATA[6]	AT1DATA[14]	EDATA[27]	EDATA28	EDATA[31]	EADRS[4]	EADRS[6]	EADRS[8]	ECLKEN	EDATA[9]	EDATA[11]	EDATA[13]	DVDDAD8	AVDDAD8	AVSSAD8	VRB10	AVSSAD10	TSRW	WM2DTO[0]	WM2DTO[7]	WM1DTO[2]	WM1DT[0]	WM1DTI[6]	AGCCTL	REC656O[5]	YOUT	AVSS2DA10	25
24	AT1DATA[2]	AT1DATA[1]	AT1DATA[5]	AT1DATA[10]	AT1DATA[14]	EDATA[3]	EADRS[5]	EADRS[7]	EADRS[9]	ECLKO	EDATA[10]	EDATA[12]	EDATA[14]	EDATA[15]	AVSSAD8	DVDDAD10	VRTD10	TSCLK	WM2DTO[1]	WM2DTO[4]	WM1DTO[3]	WM2DTC[1]	WM1DT[5]	REC656O[0]	COUT	IREF[1]	ROUT	AVDD1DA10	24
23	AT1DIOW	AT1DMACK	AT1DATA[0]	AT1DATA[3]	AT1DATA[9]	GND	VDD3	VDD	GND	VDD3	VDD	GND	VDD3	VDD	GND	VDD2	VDD	GND	VDD2	VDD	GND	VDD3	VDD	REC656O[4]	AVDD1DA10	BOUT	DVACK	DVREQ	23
22	AT1ADR[1]	AT1INTRQ	AT1DIOR	AT1RESET	AT1DATA4]	VDD3																	VDD3	IREF[0]	AVSS1DA10	REC656O[6]	DVVIDEO[0]	DVVIDEO[1]	22
21	AT1CS[0]	AT1CS[1]	AT1ADR[0]	AT1IORDY	AT1DMARQ	VDD																	VDD	GOUT	REC656O[7]	DVVIDEO[3]	DVVIDEO[4]	PLL2AVSS	21
20	AT2DATA[11]	AT2DATA[12]	AT1DATA[13]	AT2DATA[14]	AT1ADR[2]	GND																	GND	DVVIDEO[2]	ADMCLKI	PLL2AVDD	DVVCLKI	DVVIDEO[7]	20
19	AT2DATA[6]	AT2DATA[7]	AT2DATA[8]	AT2DATA[10]	AT2DATA[15]	VDD3																	VDD3	R656CLKI	DVVIDEO[5]	REC656[0]	REC656[1]	REC656[2]	19
18	AT2DATA[1]	AT2DATA[2]	AT2DATA[4]	AT2DATA[5]	AT2DATA[9]	VDD																	VDD	DVVIDEO[6]	REC656[3]	REC656[4]	REC656[6]	REC656[7]	18
17	AT2DIOW	AT2DMARQ	AT2RESET	AT2DATA[0]	AT2DATA[3]	GND						GND	GND	GND	GND	GND	GND						GND	REC656[5]	PXCLK	DVVCLKO	PLLRST	TRST	17
16	AT2ADR[2]	AT2INTRQ	AT2IORDY	AT2DIOR	AT2DMACK	VDD3						GND	GND	GND	GND	GND	GND						VDD3	TCK	TDI	TDO	TMS	PLLON	16
15	AT2MODE	AT2CS[0]	AT2CS[1]	AT2ADR[0]	AT2ADR[1]	VDD						GND	GND	GND	GND	GND	GND						VDD	VIPWM	CSYNC	TESTMOD[0]	TESTMOD[1]	TESTMOD[2]	15
14	RESET	VDD	DBI	TRACE	VDD	GND						GND	GND	GND	GND	GND	GND						VDD	TESTMOD[6]	VDD	TESTMOD[5]	TESTMOD[4]	TESTMOD[3]	14
13	PCO	PLL3AVSS	PLL3AVDD	VMCLK	PLL1AVDD	VDD3						GND	GND	GND	GND	GND	GND						VDD3	HADRS[28]	HADRS[29]	HADRS[24]	HADRS[25]	HADRS[26]	13
12	PLL1AVSS	ADCCLKO	VDD	DVAMCLKO	DVAMCLKI	VDD						GND	GND	GND	GND	GND	GND						GND	HADRS[27]	HADRS[19]	HADRS[18]	HADRS[23]	HADRS[22]	12
11	DACCLKO	AMCLK1	AMCLK2	ARDATA[1]	ARDATA[0]	GND																	VDD	HADRS[15]	HADRS[16]	HADRS[17]	HADRS[20]	HADRS[21]	11
10	ARDATA[14]	ARDATA[15]	ARDATA[4]	ARDATA[3]	ARDATA[2]	VDD2																	VDD3	HDCS[1]	HDCS[0]	HCAS	HRAS	HCLKEN	10
9	ARDATA[11]	ARDATA[12]	ARDATA[13]	ARDATA[6]	ARDATA[5]	VDD																	GND	HDATA[7]	HDWE	DQMWS[0]	DQMWS[1]	HCLKO	9
8	ARDATA[10]	ARDATA[9]	ARWE	ARDQM[0]	ARDATA[7]	GND																	VDD	HDATA[6]	HDATA[5]	HDATA[4]	HDATA[8]	HDATA[9]	8
7	ARDATA[8]	ARDQM[1]	ARCS[0]	ARRAS	ARCAS	VDD3																	VDD3	HADRS[9]	HDATA[2]	HDATA[3]	HDATA11]	HDATA[10]	7
6	ARCLKO	ARADRS[12]	ARADRS[13]	ARADRS[14]	ARCS[1]	VDD	VDD3	GND	VDD	VDD3	VDD	GND	VDD3	VDD	GND	VDD3	VDD	GND	VDD3	VDD	GND	VDD3	VDD	HADRS[10]	HDATA[1]	HDATA[0]	HDATA[12]	HDATA[13]	6
5	ARADRS[11]	ARADRS[9]	ARADRS[1]	ARADRS[0]	ARADRS[10]	SPDIFI	ACMOD[0]	BCKO	DVDADT[4]	DVDAADR[0]	SCIDATA[0]	SPIDATAO	DDATA[11]	DDATA[8]	DCLKO	DADRS[9]	DADRS[8]	INT[7]	INT[1]	CTS[2]	RTS[0]	TX[3]	HWAIT	HCS[5]	HADRS[11]	HADRS[12]	HDATA[15]	HDATA[14]	5
4	ARADRS[8]	ARADRS[3]	ARADRS[2]	SRCBCKI	SRCDATAO	ACMOD[1]	LRCKO	DVDADT[3]	DVDAREQ	SCIDATA[1]	SPICS	DDATA[14]	DDATA[12]	DDATA[9]	DDQM[1]	DADRS[11]	DADRS[7]	DADRS[6]	INT[6]	INT[2]	CTS[1]	RX[3]	TX[2]	HDACK[0]	VDD	HCS[0]	HADRS[13]	HADRS[14]	4
3	ARADRS[7]	ARADRS[6]	SRCLRCKI	SRCLRCKO	DVBCK	ADATAI	DVDADT[5]	DVDADT[1]	DVDAACK	VDD	SPIDATAI	DDATA[15]	DDATA[13]	DDATA[10]	DWE	DCS	DADRS[10]	DADRS[5]	DADRS[4]	INT[3]	SCLK[0]	CTS[0]	RX[2]	TX[1]	HDREQ[0]	HCS[3]	HCS[2]	HADRS[30]	3
2	ARADRS[5]	ARADRS[4]	SRCBCKO	SPDIFO	BCKI	DVDADT[7]	DVDADT[6]	DVDADT[0]	SCICS[1]	SCICLK[1]	SPICLK	DDATA[2]	DDATA[3]	DDATA[6]	DDQM[0]	DRAS	DBS[1]	DADRS[1]	DADRS[2]	INT[4]	SCLK[1]	RTS[3]	RTS[2]	RX[1]	HDACK[1]	HOE	HCS[4]	HCS[1]		2
1	VDD	SRCDATAI	DVLRCK	DVADATA	LRCKI	ADATAO	DVDADT[2]	DVDAADR[1]	SCICS[0]	SCICLK[0]	DDATA[0]	DDATA[1]	DDATA[4]	DDATA[5]	DDATA[7]	DCAS	DBS[0]	DADRS[0]	DADRS[3]	INT[5]	INT[0]	CTS[3]	RTS[1]	RX[0]	TX[0]	HDREQ[1]	NC	NC		1
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T	U	V	W	Y	AA	AB	AC	AD	AE	AF	AG	AH	

VDD	: 1.2V Power supply
VDD3	: 3.3V Power supply
GND	: Ground

● Pin Function

No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
1	VDD3	VDD3	–	3.3V I/O power supply	56	V26	VRT10	–	TOP side reference voltage
2	GND	GND	–	Ground	57	V28	VRM10	–	Common voltage
3	VDD	VDD	–	1.2V LOGIC power supply	58	U25	VRB10	–	Bottom side reference voltage
4	AH28	VDD	–	1.2V LOGIC power supply	59	U26	VRBD10	I/O	Analog test bus (for debugging)
5	AF26	ACCCTL	O		60	U27	DVSSAD10	–	ADC part digital ground
6	AF27	PEDCTL	O	VIDEO-Analog, Output buffer	61	T24	DVDDAD10	–	ADC part digital power supply (3.3V)
7	AG28	HKEYPLS	O	VIDEO-Analog, Output buffer	62	GND	GND	–	Ground
8	GND	GND	–	Ground	63	VDD	VDD	–	1.2V LOGIC power supply
9	AE26	WM1DTI[7]	I/O	WM/VWM, Bidirectional buffer	64	U28	AVDDAD8	–	
10	AD25	WM1DTI[6]	I/O	WM/VWM, Bidirectional buffer	65	T25	AVSSAD8	–	
11	AC24	WM1DTI[5]	I/O	WM/VWM, Bidirectional buffer	66	T26	CIN	I	VIDEO-Analog
12	AE27	WM1DTI[4]	I/O	WM/VWM, Bidirectional buffer	67	T27	VRT8	–	VIDEO-Analog
13	AF28	WM1DTI[3]	I/O	WM/VWM, Bidirectional buffer	68	T28	VRB8	–	VIDEO-Analog
14	AD26	WM1DTI[2]	I/O	WM/VWM, Bidirectional buffer	69	R25	AVDDAD8	–	
15	AE28	WM1DTI[1]	I/O	WM/VWM, Bidirectional buffer	70	R24	AVSSAD8	–	
16	AC25	WM1DTI[0]	I/O	WM/VWM, Bidirectional buffer	71	R26	CRIN	I	VIDEO-Analog
17	AB24	WM1DTO[7]	I/O	WM/VWM, Bidirectional buffer	72	R28	BG8	–	VIDEO-Analog
18	VDD	VDD	–	1.2V LOGIC power supply	73	P28	AVDDAD8	–	
19	GND	GND	–	Ground	74	P27	AVSSAD8	–	
20	AD27	WM1DTO[6]	I/O	WM/VWM, Bidirectional buffer	75	R27	GIN	I	VIDEO-Analog
21	AC26	WM1DTO[5]	I/O	WM/VWM, Bidirectional buffer	76	P26	DVSSAD8	–	
22	AD28	WM1DTO[4]	I/O	WM/VWM, Bidirectional buffer	77	P25	DVDDAD8	–	
23	AA24	WM1DTO[3]	I/O	WM/VWM, Bidirectional buffer	78	GND	GND	–	Ground
24	AB25	WM1DTO[2]	I/O	WM/VWM, Bidirectional buffer	79	P24	EDATA[15]	I/O	SDRAM ENC, Bidirectional buffer
25	VDD	VDD	–	1.2V LOGIC power supply	80	VDD3	VDD3	–	3.3V I/O power supply
26	AC27	WM1DTO[1]	I/O	WM/VWM, Bidirectional buffer	81	N28	EDATA[0]	I/O	SDRAM ENC, Bidirectional buffer
27	GND	GND	–	Ground	82	N27	EDATA[1]	I/O	SDRAM ENC, Bidirectional buffer
28	AC28	WMCLKO	O	WM/VWM, Output buffer	83	N26	EDATA[2]	I/O	SDRAM ENC, Bidirectional buffer
29	VDD3	VDD3	–	3.3V I/O power supply	84	VDD	VDD	–	1.2V LOGIC power supply
30	AB26	WM1DTO[0]	I/O	WM/VWM, Bidirectional buffer	85	N25	EDATA[13]	I/O	SDRAM ENC, Bidirectional buffer
31	AA25	WM2DTO[7]	O	WM/VWM, Output buffer	86	GND	GND	–	Ground
32	AB27	WM2DTO[6]	O	WM/VWM, Output buffer	87	M28	EDATA[3]	I/O	SDRAM ENC, Bidirectional buffer
33	AB28	VDD	–	1.2V LOGIC power supply	88	GND	GND	–	Ground
34	Y24	WM2DTO[5]	O	WM/VWM, Output buffer	89	N24	EDATA[14]	I/O	SDRAM ENC, Bidirectional buffer
35	AA27	WM2DTO[4]	O	WM/VWM, Output buffer	90	M27	EDATA[4]	I/O	SDRAM ENC, Bidirectional buffer
36	AA26	WM2DTO[3]	O	WM/VWM, Output buffer	91	M26	EDATA[5]	I/O	SDRAM ENC, Bidirectional buffer
37	AA28	WM2DTO[2]	O	WM/VWM, Output buffer	92	VDD3	VDD3	–	3.3V I/O power supply
38	W24	WM2DTO[1]	O	WM/VWM, Output buffer	93	M25	EDATA[11]	I/O	SDRAM ENC, Bidirectional buffer
39	GND	GND	–	Ground	94	L28	EDATA[6]	I/O	SDRAM ENC, Bidirectional buffer
40	Y25	WM2DTO[0]	O	WM/VWM, Output buffer	95	L27	EDATA[7]	I/O	SDRAM ENC, Bidirectional buffer
41	GND	GND	–	Ground	96	VDD	VDD	–	1.2V LOGIC power supply
42	Y26	SYNC	I/O	TS OUT, Bidirectional buffer	97	M24	EDATA[12]	I/O	SDRAM ENC, Bidirectional buffer
43	Y27	STREAM	I/O	TS OUT,Bidirectional buffer	98	GND	GND	–	Ground
44	Y28	PACKETEN	I/O	TS OUT,Bidirectional buffer	99	L26	EDATA[8]	I/O	SDRAM ENC, Bidirectional buffer
45	VDD3	VDD3	–	3.3V IO power supply	100	GND	GND	–	Ground
46	W25	TSRW	O	TS OUT,Output buffer	101	L25	EDATA[9]	I/O	SDRAM ENC, Bidirectional buffer
47	GND	GND	–	Ground	102	K28	EDQM	O	SDRAM ENC, Output buffer
48	V24	TSCLK	O	TS OUT,Output buffer	103	K27	EWE	O	SDRAM ENC, Output buffer
49	VDD3	VDD3	–	3.3V I/O power supply	104	VDD3	VDD3	–	3.3V I/O power supply
50	W26	NBC10	–	Bias current adjustment terminal	105	K26	ECAS	O	SDRAM ENC, Output buffer
51	W27	VBGR10	I/O	Analog test bus (for debugging)	106	L24	EDATA[10]	I/O	SDRAM ENC, Bidirectional buffer
52	W28	AVDDAD10	–	ADC part analog power supply (3.3V)	107	K25	ECLKEN	O	Output buffer, 4/6mA
53	V25	AVSSAD10	–	ADC part analog Ground	108	VDD	VDD	–	1.2V LOGIC power supply
54	V27	CVBSIN	I	Analog Input	109	J28	ERAS	O	SDRAM ENC, Output buffer
55	U24	VRTD10	–	Input common bias	110	GND	GND	–	Ground

No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
111	J27	ECS	O	SDRAM ENC, Output buffer	166	VDD3	VDD3	–	3.3V I/O power supply
112	GND	GND	–	Ground	167	C25	AT1DATA[11]	I/O	ATAPI-DVD, Bidirectional buffer
113	J26	EADRS[11]	O	SDRAM ENC, Output buffer	168	D24	AT1DATA[10]	I/O	ATAPI-DVD, Bidirectional buffer
114	J25	EADRS[8]	O	SDRAM ENC, Output buffer	169	E23	AT1DATA[9]	I/O	ATAPI-DVD, Bidirectional buffer
115	GND	GND	–	Ground	170	GND	GND	–	Ground
116	K24	ECLKO	O	SDRAM ENC, Output buffer	171	A26	AT1DATA[8]	I/O	ATAPI-DVD, Bidirectional buffer
117	VDD3	VDD3	–	3.3V I/O power supply	172	A25	AT1DATA[7]	I/O	ATAPI-DVD, Bidirectional buffer
118	H28	EBS[0]	O	SDRAM ENC, Output buffer	173	B25	AT1DATA[6]	I/O	ATAPI-DVD, Bidirectional buffer
119	H27	EBS[1]	O	SDRAM ENC, Output buffer	174	GND	GND	–	Ground
120	H26	EADRS[10]	O	SDRAM ENC, Output buffer	175	C24	AT1DATA[5]	I/O	ATAPI-DVD, Bidirectional buffer
121	VDD	VDD	–	1.2V LOGIC power supply	176	VDD3	VDD3	–	3.3V I/O power supply
122	G28	EADRS[0]	O	SDRAM ENC, Output buffer	177	E22	AT1DATA[4]	I/O	ATAPI-DVD, Bidirectional buffer
123	GND	GND	–	Ground	178	VDD	VDD	–	1.2V LOGIC power supply
124	J24	EADRS[9]	O	SDRAM ENC, Output buffer	179	D23	AT1DATA[3]	I/O	ATAPI-DVD, Bidirectional buffer
125	GND	GND	–	Ground	180	A24	AT1DATA[2]	I/O	ATAPI-DVD, Bidirectional buffer
126	G27	EADRS[1]	O	SDRAM ENC, Output buffer	181	B24	AT1DATA[1]	I/O	ATAPI-DVD, Bidirectional buffer
127	H25	EADRS[6]	O	SDRAM ENC, Output buffer	182	GND	GND	–	Ground
128	G26	EADRS[2]	O	SDRAM ENC, Output buffer	183	C23	AT1DATA[0]	I/O	ATAPI-DVD, Bidirectional buffer
129	VDD3	VDD3	–	3.3V I/O power supply	184	D22	AT1RESET	O	Output buffer,8mA
130	F27	EDATA[17]	I/O	SDRAM ENC, Bidirectional buffer	185	E21	AT1DMARQ	I	ATAPI-DVD, Input buffer
131	F28	EDATA[16]	I/O	SDRAM ENC, Bidirectional buffer	186	GND	GND	–	Ground
132	H24	EADRS[7]	O	SDRAM ENC, Output buffer	187	B23	AT1DMACK	O	ATAPI-DVD, Output buffer
133	VDD	VDD	–	1.2V LOGIC power supply	188	VDD3	VDD3	–	3.3V I/O power supply
134	G25	EADRS[4]	O	SDRAM ENC, Output buffer	189	A23	AT1DIOW	O	ATAPI-DVD, Output buffer
135	GND	GND	–	Ground	190	VDD	VDD	–	1.2V LOGIC power supply
136	F26	EDATA[30]	I/O	SDRAM ENC, Bidirectional buffer	191	C22	AT1DIOR	O	ATAPI-DVD, Output buffer
137	GND	GND	–	Ground	192	D21	AT1IORDY	I	ATAPI-DVD, Input buffer
138	E27	EDATA[19]	I/O	SDRAM ENC, Bidirectional buffer	193	B22	AT1INTRQ	I	ATAPI-DVD, Input buffer
139	E28	EDATA[18]	I/O	SDRAM ENC, Bidirectional buffer	194	GND	GND	–	Ground
140	F25	EDATA[31]	I/O	SDRAM ENC, Bidirectional buffer	195	E20	AT1ADR[2]	O	ATAPI-DVD, Output buffer
141	VDD3	VDD3	–	3.3V I/O power supply	196	A22	AT1ADR[1]	O	ATAPI-DVD, Output buffer
142	E26	EDATA[29]	I/O	SDRAM ENC, Bidirectional buffer	197	C21	AT1ADR[0]	O	ATAPI-DVD, Output buffer
143	G24	EADRS[5]	O	SDRAM ENC, Output buffer	198	GND	GND	–	Ground
144	D28	EDATA[20]	I/O	SDRAM ENC, Bidirectional buffer	199	B21	AT1CS[1]	O	ATAPI-DVD, Output buffer
145	VDD	VDD	–	1.2V LOGIC power supply	200	VDD3	VDD3	–	3.3V I/O power supply
146	D27	EDATA[21]	I/O	SDRAM ENC, Bidirectional buffer	201	A21	AT1CS[0]	O	ATAPI-DVD, Output buffer
147	GND	GND	–	Ground	202	VDD	VDD	–	1.2V LOGIC power supply
148	C28	EDATA[22]	I/O	SDRAM ENC, Bidirectional buffer	203	E19	AT2DATA[15]	I/O	ATAPI-HDD, Bidirectional buffer
149	GND	GND	–	Ground	204	D20	AT2DATA[14]	I/O	ATAPI-HDD, Bidirectional buffer
150	F24	EADRS[3]	O	SDRAM ENC, Output buffer	205	C20	AT2DATA[13]	I/O	ATAPI-HDD, Bidirectional buffer
151	E25	EDATA[28]	I/O	SDRAM ENC, Bidirectional buffer	206	GND	GND	–	Ground
152	D26	EDATA[26]	I/O	SDRAM ENC, Bidirectional buffer	207	B20	AT2DATA[12]	I/O	ATAPI-HDD, Bidirectional buffer
153	VDD3	VDD3	–	3.3V I/O power supply	208	A20	AT2DATA[11]	I/O	ATAPI-HDD, Bidirectional buffer
154	B28	EDATA[23]	I/O	SDRAM ENC, Bidirectional buffer	209	D19	AT2DATA[10]	I/O	ATAPI-HDD, Bidirectional buffer
155	C27	EDATA[25]	I/O	SDRAM ENC, Bidirectional buffer	210	GND	GND	–	Ground
156	B27	EDATA24]	I/O	SDRAM ENC, Bidirectional buffer	211	E18	AT2DATA[9]	I/O	ATAPI-HDD, idirectional buffer
157	VDD	VDD	–	1.2V LOGIC power supply	212	VDD3	VDD3	–	3.3V I/O power supply
158	D25	EDATA[27]	I/O	SDRAM ENC, Bidirectional buffer	213	C19	AT2DATA[8]	I/O	ATAPI-HDD, Bidirectional buffer
159	GND	GND	–	Ground	214	VDD	VDD	–	1.2V LOGIC power supply
160	C26	AT1DATA[15]	I/O	ATAPI-DVD, Bidirectional buffer	215	B19	AT2DATA[7]	I/O	ATAPI-HDD, Bidirectional buffer
161	E24	AT1DATA[14]	I/O	ATAPI-DVD, Bidirectional buffer	216	A19	AT2DATA[6]	I/O	ATAPI-HDD, Bidirectional buffer
162	GND	GND	–	Ground	217	D18	AT2DATA[5]	I/O	ATAPI-HDD, Bidirectional buffer
163	A28	VDD	–	1.2V LOGIC power supply	218	GND	GND	–	Ground
164	B26	AT1DATA[13]	I/O	ATAPI-DVD, Bidirectional buffer	219	C18	AT2DATA[4]	I/O	ATAPI-HDD, Bidirectional buffer
165	A27	AT1DATA[12]	I/O	ATAPI-DVD, Bidirectional buffer	220	E17	AT2DATA[3]	I/O	ATAPI-HDD, Bidirectional buffer

No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
221	B18	AT2DATA[2]	I/O	ATAPI-HDD, Bidirectional buffer	276	VDD3	VDD3	–	3.3V I/O power supply
222	GND	GND	–	Ground	277	C11	AMCLK2	I	CLOCK, Input buffer
223	A18	AT2DATA[1]	I/O	ATAPI-HDD, Bidirectional buffer	278	GND	GND	–	Ground
224	VDD3	VDD3	–	3.3V I/O power supply	279	D11	ARDATA[1]	I/O	SDRAM-ATAPI, Bidirectional buffer
225	D17	AT2DATA[0]	I/O	ATAPI-HDD, Bidirectional buffer	280	VDD3	VDD3	–	3.3V I/O power supply
226	VDD	VDD	–	1.2V LOGIC power supply	281	A10	ARDATA[14]	I/O	SDRAM-ATAPI, Bidirectional buffer
227	C17	AT2RESET	I/O	ATAPI-HDD, Bidirectional buffer	282	VDD	VDD	–	1.2V LOGIC power supply
228	B17	AT2DMARQ	I	ATAPI-HDD, Input buffer	283	B10	ARDATA[15]	I/O	SDRAM-ATAPI, Bidirectional buffer
229	E16	AT2DMACK	O	ATAPI-HDD, Output buffer	284	E11	ARDATA[0]	I/O	SDRAM-ATAPI, Bidirectional buffer
230	GND	GND	–	Ground	285	C10	ARDATA[4]	I/O	SDRAM-ATAPI, Bidirectional buffer
231	A17	AT2DIOW	O	ATAPI-HDD, Output buffer	286	GND	GND	–	Ground
232	D16	AT2DIOR	O	ATAPI-HDD, Output buffer	287	D10	ARDATA[3]	I/O	SDRAM-ATAPI, Bidirectional buffer
233	C16	AT2IORDY	I	ATAPI-HDD, Input buffer	288	A9	ARDATA[11]	I/O	SDRAM-ATAPI, Bidirectional buffer
234	GND	GND	–	Ground	289	B9	ARDATA[12]	I/O	SDRAM-ATAPI, Bidirectional buffer
235	B16	AT2INTRQ	I	ATAPI-HDD, Input buffer	290	GND	GND	–	Ground
236	VDD3	VDD3	–	3.3V I/O power supply	291	C9	ARDATA[13]	I/O	SDRAM-ATAPI, Bidirectional buffer
237	A16	AT2ADR[2]	I/O	ATAPI-HDD, Bidirectional buffer	292	E10	ARDATA[2]	I/O	SDRAM-ATAPI, Bidirectional buffer
238	VDD	VDD	–	1.2V LOGIC power supply	293	D9	ARDATA[6]	I/O	SDRAM-ATAPI, Bidirectional buffer
239	E15	AT2ADR[1]	I/O	ATAPI-HDD, Bidirectional buffer	294	VDD3	VDD3	–	3.3V I/O power supply
240	GND	GND	–	Ground	295	A8	ARDATA[10]	I/O	SDRAM-ATAPI, Bidirectional buffer
241	D15	AT2ADR[0]	I/O	ATAPI-HDD, Bidirectional buffer	296	B8	ARDATA[9]	I/O	SDRAM-ATAPI, Bidirectional buffer
242	VDD	VDD	–	1.2V LOGIC power supply	297	C8	ARWE	O	SDRAM-ATAPI, Output buffer
243	C15	AT2CS[1]	O	ATAPI-HDD, Output buffer	298	VDD	VDD	–	1.2V LOGIC power supply
244	GND	GND	–	Ground	299	A7	ARDATA[8]	I/O	SDRAM-ATAPI, Bidirectional buffer
245	B15	AT2CS[0]	O	ATAPI-HDD, Output buffer	300	E9	ARDATA[5]	I/O	SDRAM-ATAPI, Bidirectional buffer
246	VDD	VDD	–	1.2V LOGIC power supply	301	D8	ARDQM[0]	O	SDRAM-ATAPI, Output buffer
247	A15	AT2MODE	I	ATAPI-HDD, Input buffer	302	GND	GND	–	Ground
248	GND	GND	–	Ground	303	B7	ARDQM[1]	O	SDRAM-ATAPI, Output buffer
249	GND	GND	–	Ground	304	C7	ARCS[0]	O	SDRAM-ATAPI, Output buffer
250	A14	RESET	I	Input buffer (5V tolerant)	305	VDD3	VDD3	–	3.3V I/O power supply
251	VDD3	VDD3	–	3.3V I/O power supply	306	A6	ARCLKO	O	SDRAM-ATAPI, Output buffer
252	B14	VDD	–	1.2V LOGIC power supply	307	GND	GND	–	Ground
253	C14	DBI	I	TEST, Input buffer	308	B6	ARADRS[12]	O	SDRAM-ATAPI, Output buffer
254	GND	GND	–	Ground	309	E8	ARDATA[7]	I/O	SDRAM-ATAPI, Bidirectional buffer
255	D14	TRACE	I	TEST, Input buffer	310	D7	ARRAS	O	SDRAM-ATAPI, Output buffer
256	E14	VDD	–	1.2V LOGIC power supply	311	VDD3	VDD3	–	3.3V I/O power supply
257	A13	PCO	O	CLOCK, 3 state output buffer	312	A5	ARADRS[11]	O	SDRAM-ATAPI, Output buffer
258	GND	GND	–	Ground	313	C6	ARADRS[13]	O	SDRAM-ATAPI, Output buffer
259	B13	PLL3AVSS	–		314	B5	ARADRS[9]	O	SDRAM-ATAPI, Output buffer
260	C13	PLL3AVDD	–		315	VDD	VDD	–	1.2V LOGIC power supply
261	D13	VMCLK	I	CLOCK, Input buffer	316	E7	ARCAS	O	SDRAM-ATAPI, Output buffer
262	E13	PLL1AVDD	–		317	D6	ARADRS[14]	O	SDRAM-ATAPI, Output buffer
263	A12	PLL1AVSS	–		318	C5	ARADRS[1]	O	SDRAM-ATAPI, Output buffer
264	VDD3	VDD3	–	3.3V I/O power supply	319	GND	GND	–	Ground
265	B12	ADCCLKO	O	CLOCK, Output buffer	320	B4	ARADRS[3]	O	SDRAM-ATAPI, Output buffer
266	GND	GND	–	Ground	321	A4	ARADRS[8]	O	SDRAM-ATAPI, Output buffer
267	C12	VDD	–	1.2V LOGIC power supply	322	A3	ARADRS[7]	O	SDRAM-ATAPI, Output buffer
268	VDD3	VDD3	–	3.3V I/O power supply	323	GND	GND	–	Ground
269	D12	DVAMCLKO	O	CLOCK, Output buffer	324	E6	ARCS[1]	O	SDRAM-ATAPI, Output buffer
270	GND	GND	–	Ground	325	D5	ARADRS[0]	O	SDRAM-ATAPI, Output buffer
271	A11	DACCLKO	O	CLOCK, Output buffer	326	C4	ARADRS[2]	O	SDRAM-ATAPI, Output buffer
272	VDD3	VDD3	–	3.3V I/O power supply	327	VDD3	VDD3	–	3.3V I/O power supply
273	E12	DVAMCLKI	I	AUDIO CLOCK, Input buffer	328	A2	ARADRS[5]	O	SDRAM-ATAPI, Output buffer
274	GND	GND	–	Ground	329	B3	ARADRS[6]	O	SDRAM-ATAPI, Output buffer
275	B11	AMCLK1	I	CLOCK, Input buffer	330	B2	ARADRS[4]	O	SDRAM-ATAPI, Output buffer

No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
331	GND	GND	–	Ground	386	VDD	VDD	–	1.2V LOGIC power supply
332	E5	ARADRS[10]	O	SDRAM-ATAPI, Output buffer	387	GND	GND	–	Ground
333	D4	SRCBCKI	I	AUDIO, Input buffer	388	L3	SPIDATAI	I/O	HOST, Bidirectional buffer
334	VDD3	VDD3	–	3.3V I/O power supply	389	VDD	VDD	–	1.2V LOGIC power supply
335	C3	SRCLRCKI	I	AUDIO, Input buffer	390	M5	SPIDATAO	I/O	HOST, Bidirectional buffer
336	B1	SRCDATAI	I	AUDIO, Input buffer	391	GND	GND	–	Ground
337	A1	VDD	–	1.2V LOGIC power supply	392	L2	SPICLK	I/O	HOST, Bidirectional buffer
338	GND	GND	–	Ground	393	GND	GND	–	Ground
339	C2	SRCBCKO	O	AUDIO, Output buffer	394	L1	DDATA[0]	I/O	SDRAM-DEC, Bidirectional buffer
340	VDD	VDD	–	1.2V LOGIC power supply	395	VDD3	VDD3	–	3.3V I/O power supply
341	D3	SRCLRCKO	O	AUDIO, Output buffer	396	M4	DDATA[14]	I/O	SDRAM-DEC, Bidirectional buffer
342	E4	SRCDATAO	O	AUDIO, Output buffer	397	M3	DDATA[15]	I/O	SDRAM-DEC, Bidirectional buffer
343	F5	SPDIFI	I	AUDIO, Input buffer	398	M2	DDATA[2]	I/O	SDRAM-DEC, Bidirectional buffer
344	D2	SPDIFO	O	AUDIO, Output buffer	399	VDD	VDD	–	1.2V LOGIC power supply
345	C1	DVLRCK	I/O	AUDIO, Bidirectional buffer	400	N5	DDATA[11]	I/O	SDRAM-DEC, Bidirectional buffer
346	E3	DVBCK	I/O	AUDIO, Bidirectional buffer	401	GND	GND	–	Ground
347	D1	DVADATA	I/O	AUDIO, Bidirectional buffer	402	M1	DDATA[1]	I/O	SDRAM-DEC, Bidirectional buffer
348	F4	ACMOD[1]	I	AUDIO, Input buffer	403	GND	GND	–	Ground
349	G5	ACMOD[0]	I	AUDIO, Input buffer	404	N4	DDATA[12]	I/O	SDRAM-DEC, Bidirectional buffer
350	E1	LRCKI	I	AUDIO, Input buffer	405	N3	DDATA[13]	I/O	SDRAM-DEC, Bidirectional buffer
351	E2	BCKI	I	AUDIO, Input buffer	406	N2	DDATA[3]	I/O	SDRAM-DEC, Bidirectional buffer
352	GND	GND	–	Ground	407	VDD3	VDD3	–	3.3V I/O power supply
353	F3	ADATAI	I	AUDIO, Input buffer	408	N1	DDATA[4]	I/O	SDRAM-DEC, Bidirectional buffer
354	GND	GND	–	Ground	409	P5	DDATA[8]	I/O	SDRAM-DEC, Bidirectional buffer
355	G4	LRCKO	O	AUDIO, Output buffer	410	P4	DDATA[9]	I/O	SDRAM-DEC, Bidirectional buffer
356	VDD	VDD	–	1.2V LOGIC power supply	411	VDD	VDD	–	1.2V LOGIC power supply
357	H5	BCKO	O	AUDIO, Output buffer	412	P3	DDATA[10]	I/O	SDRAM-DEC, Bidirectional buffer
358	F1	ADATAO	O	DVD-AUDIO, Output buffer	413	GND	GND	–	Ground
359	F2	DVDADT[7]	O	DVD-AUDIO, Output buffer	414	P2	DDATA[6]	I/O	SDRAM-DEC, Bidirectional buffer
360	G2	DVDADT[6]	O	DVD-AUDIO, Output buffer	415	GND	GND	–	Ground
361	G3	DVDADT[5]	O	DVD-AUDIO, Output buffer	416	P1	DDATA[5]	I/O	SDRAM-DEC, Bidirectional buffer
362	J5	DVDADT[4]	O	DVD-AUDIO, Output buffer	417	R1	DDATA[7]	I/O	SDRAM-DEC, Bidirectional buffer
363	H4	DVDADT[3]	O	DVD-AUDIO, Output buffer	418	R2	DDQM[0]	O	SDRAM-DEC, Output buffer
364	G1	DVDADT[2]	O	DVD-AUDIO, Output buffer	419	VDD3	VDD3	–	3.3V I/O power supply
365	H3	DVDADT[1]	O	DVD-AUDIO, Output buffer	420	R3	DWE	O	SDRAM-DEC, Output buffer
366	H2	DVDADT[0]	O	DVD-AUDIO, Output buffer	421	VDD	VDD	–	1.2V LOGIC power supply
367	H1	DVDAADR[1]	O	DVD-AUDIO, Output buffer	422	R4	DDQM[1]	O	SDRAM-DEC, Output buffer
368	K5	DVDAADR[0]	O	DVD-AUDIO, Output buffer	423	GND	GND	–	Ground
369	J4	DVDAREQ	I/O	DVD-AUDIO, Bidirectional buffer	424	R5	DCLKO	O	SDRAM-DEC, Output buffer
370	GND	GND	–	Ground	425	VDD3	VDD3	–	3.3V I/O power supply
371	J3	DVDAACK	O	DVD-AUDIO, Output buffer	426	VDD	VDD	–	1.2V LOGIC power supply
372	VDD	VDD	–	1.2V LOGIC power supply	427	T1	DCAS	O	SDRAM-DEC, Output buffer
373	J2	SCICS[1]	I/O	HOST, Bidirectional buffer	428	GND	GND	–	Ground
374	VDD3	VDD3	–	3.3V I/O power supply	429	T2	DRAS	–	SDRAM-DEC, Output buffer
375	J1	SCICS[0]	I/O	HOST, Bidirectional buffer	430	GND	GND	–	Ground
376	VDD	VDD	–	1.2V LOGIC power supply	431	T3	DCS	O	SDRAM-DEC, Output buffer
377	K4	SCIDATA[1]	I/O	HOST, Bidirectional buffer	432	T4	DADRS[11]	O	SDRAM-DEC, Output buffer
378	GND	GND	–	Ground	433	U1	DBS[0]	O	SDRAM-DEC, Output buffer
379	L5	SCIDATA[0]	I/O	HOST, Bidirectional buffer	434	VDD3	VDD3	–	3.3V I/O power supply
380	K3	VDD	–	1.2V LOGIC power supply	435	T5	DADRS[9]	O	SDRAM-DEC, Output buffer
381	K2	SCICLK[1]	I/O	HOST, Bidirectional buffer	436	U2	DBS[1]	O	SDRAM-DEC, Output buffer
382	GND	GND	–	Ground	437	U3	DADRS[10]	O	SDRAM-DEC, Output buffer
383	K1	SCICLK[0]	I/O	HOST, Bidirectional buffer	438	VDD	VDD	–	1.2V LOGIC power supply
384	GND	GND	–	Ground	439	U4	DADRS[7]	O	SDRAM-DEC, Output buffer
385	L4	SPICS	I/O	HOST, Bidirectional buffer	440	GND	GND	–	Ground

No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
441	V1	DADRS[0]	O	SDRAM-DEC, Output buffer	496	VDD	VDD	–	1.2V LOGIC power supply
442	GND	GND	–	Ground	497	AD4	HDACK[0]	O	Output buffer, 4mA
443	V2	DADRS[1]	O	SDRAM-DEC, Output buffer	498	AF1	HDREQ[1]	I	HOST, Input buffer
444	VDD	VDD	–	1.2V LOGIC power supply	499	AE3	HDREQ[0]	I	HOST, Input buffer
445	U5	DADRS[8]	O	SDRAM-DEC, Output buffer	500	AC5	HWAIT	I	HOST, Input buffer
446	GND	GND	–	Ground	501	AF2	HOE	O	HOST, Output buffer
447	V3	DADRS[5]	O	SDRAM-DEC, Output buffer	502	VDD3	VDD3	–	3.3V I/O power supply
448	VDD3	VDD3	–	3.3V I/O power supply	503	GND	GND	–	Ground
449	V4	DADRS[6]	O	SDRAM-DEC, Output buffer	504	AE4	VDD	–	1.2V LOGIC power supply
450	W1	DADRS[3]	O	SDRAM-DEC, Output buffer	505	AD5	HCS[5]	O	HOST, Output buffer
451	W2	DADRS[2]	O	SDRAM-DEC, Output buffer	506	AG2	HCS[4]	O	HOST, Output buffer
452	VDD	VDD	–	1.2V LOGIC power supply	507	AF3	HCS[3]	O	HOST, Output buffer
453	W3	DADRS[4]	O	SDRAM-DEC, Output buffer	508	AG3	HCS[2]	O	HOST, Output buffer
454	GND	GND	–	Ground	509	AH2	HCS[1]	O	HOST, Output buffer
455	GND	GND	–	Ground	510	GND	GND	–	Ground
456	GND	GND	–	Ground	511	AF4	HCS[0]	O	HOST, Output buffer
457	V5	INT[7]	I/O	HOST, Bidirectional buffer	512	VDD	VDD	–	1.2V LOGIC power supply
458	VDD	VDD	–	1.2V LOGIC power supply	513	AD6	HADRS[10]	I/O	HOST, Bidirectional buffer
459	W4	INT[6]	I/O	HOST, Bidirectional buffer	514	GND	GND	–	Ground
460	Y1	INT[5]	I/O	HOST, Bidirectional buffer	515	AE5	HADRS[11]	I/O	HOST, Bidirectional buffer
461	Y2	INT[4]	I/O	HOST, Bidirectional buffer	516	AG4	HADRS[13]	I/O	HOST, Bidirectional buffer
462	VDD3	VDD3	–	3.3V I/O power supply	517	AH3	HADRS[30]	I/O	HOST, Bidirectional buffer
463	Y3	INT[3]	I/O	HOST, Bidirectional buffer	518	VDD3	VDD3	–	3.3V I/O power supply
464	GND	GND	–	Ground	519	AF5	HADRS[12]	I/O	HOST, Bidirectional buffer
465	Y4	INT[2]	I/O	HOST, Bidirectional buffer	520	GND	GND	–	Ground
466	VDD	VDD	–	1.2V LOGIC power supply	521	AH4	HADRS[14]	I/O	HOST, Bidirectional buffer
467	W5	INT[1]	I/O	HOST, Bidirectional buffer	522	AE6	HDATA[1]	I/O	HOST, Bidirectional buffer
468	AA1	INT[0]	I/O	HOST, Bidirectional buffer	523	AD7	HADRS[9]	I/O	HOST, Bidirectional buffer
469	AA2	SCLK[1]	I/O	HOST, Bidirectional buffer	524	VDD3	VDD3	–	3.3V I/O power supply
470	AA3	SCLK[0]	I/O	HOST, Bidirectional buffer	525	AG5	HDATA[15]	I/O	HOST, Bidirectional buffer
471	AB1	CTS[3]	I/O	HOST, Bidirectional buffer	526	GND	GND	–	Ground
472	GND	GND	–	Ground	527	AH5	HDATA[14]	I/O	HOST, Bidirectional buffer
473	Y5	CTS[2]	I/O	HOST, Bidirectional buffer	528	GND	GND	–	Ground
474	GND	GND	–	Ground	529	AF6	HDATA[0]	I/O	HOST, Bidirectional buffer
475	AA4	CTS[1]	I/O	HOST, Bidirectional buffer	530	AD8	HDATA[6]	I/O	HOST, Bidirectional buffer
476	VDD	VDD	–	1.2V LOGIC power supply	531	AE7	HDATA[2]	I/O	HOST, Bidirectional buffer
477	AB3	CTS[0]	I/O	HOST, Bidirectional buffer	532	VDD3	VDD3	–	3.3V I/O power supply
478	AB2	RTS[3]	I/O	HOST, Bidirectional buffer	533	AG6	HDATA[12]	I/O	HOST, Bidirectional buffer
479	AC2	RTS[2]	I/O	HOST, Bidirectional buffer	534	VDD	VDD	–	1.2V LOGIC power supply
480	AC1	RTS[1]	I/O	HOST, Bidirectional buffer	535	AH6	HDATA[13]	I/O	HOST, Bidirectional buffer
481	AA5	RTS[0]	I/O	HOST, Bidirectional buffer	536	AG7	HDATA[11]	I/O	HOST, Bidirectional buffer
482	VDD3	VDD3	–	3.3V I/O power supply	537	AF7	HDATA[3]	I/O	HOST, Bidirectional buffer
483	AB4	RX[3]	I/O	HOST, Bidirectional buffer	538	GND	GND	–	Ground
484	GND	GND	–	Ground	539	AE8	HDATA[5]	I/O	HOST, Bidirectional buffer
485	AC3	RX[2]	I/O	HOST, Bidirectional buffer	540	GND	GND	–	Ground
486	VDD	VDD	–	1.2V LOGIC power supply	541	AD9	HDATA[7]	I/O	HOST, Bidirectional buffer
487	AD2	RX[1]	I/O	HOST, Bidirectional buffer	542	AF8	HDATA[4]	I/O	HOST, Bidirectional buffer
488	AD1	RX[0]	I/O	HOST, Bidirectional buffer	543	AH7	HDATA[10]	I/O	HOST, Bidirectional buffer
489	AB5	TX[3]	I/O	HOST, Bidirectional buffer	544	VDD3	VDD3	–	3.3V I/O power supply
490	AC4	TX[2]	I/O	HOST, Bidirectional buffer	545	AG8	HDATA[8]	I/O	HOST, Bidirectional buffer
491	AD3	TX[1]	I/O	HOST, Bidirectional buffer	546	VDD	VDD	–	1.2V LOGIC power supply
492	GND	GND	–	Ground	547	AH8	HDATA[9]	I/O	HOST, Bidirectional buffer
493	AE1	TX[0]	I/O	HOST, Bidirectional buffer	548	AE9	HDWE	O	HOST, Output buffer
494	GND	GND	–	Ground	549	AF9	DQMWS[0]	O	HOST, Output buffer
495	AE2	HDACK[1]	O	HOST, Output buffer	550	GND	GND	–	Ground

No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
551	AD10	HDCS[1]	O	HOST, Output buffer	606	AG16	TMS	I	TEST, nput buffer
552	GND	GND	–	Ground	607	GND	GND	–	Ground
553	AG9	DQMWS[1]	O	HOST, Output buffer	608	AF16	TDO	O	TEST, Output buffer
554	VDD3	VDD3	–	3.3V I/O power supply	609	VDD	VDD	–	1.2V LOGIC power supply
555	AH9	HCLKO	O	HOST, Output buffer	610	AE16	TDI	I	TEST, Input buffer
556	GND	GND	–	Ground	611	VDD3	VDD3	–	3.3V I/O power supply
557	AE10	HDCS[0]	O	HOST, Output buffer	612	AH17	TRST	I	TEST, Input buffer
558	VDD3	VDD3	–	3.3V I/O power supply	613	GND	GND	–	Ground
559	AD11	HADRS[15]	I/O	HOST, Bidirectional buffer	614	AD16	TCK	I	TEST, Input buffer
560	VDD	VDD	–	1.2V LOGIC power supply	615	VDD3	VDD3	–	3.3V I/O power supply
561	AF10	HCAS	O	HOST, Output buffer	616	AG17	PLLRST	I	CLOCK, Input buffer
562	AG10	HRAS	O	HOST, Output buffer	617	GND	GND	–	Ground
563	AH10	HCLKEN	O	HOST, Output buffer	618	AF17	DVVCLKO	O	CLOCK, Output buffer
564	GND	GND	–	Groud	619	VDD3	VDD3	–	3.3V I/O power supply
565	AE11	HADRS[16]	I/O	HOST, Bidirectional buffer	620	AE17	PXCLK	O	CLOCK, Output buffer
566	GND	GND	–	Ground	621	GND	GND	–	Ground
567	AF11	HADRS[17]	I/O	HOST, Bidirectional buffer	622	AH18	REC656I[7]	I	VIDEO-Digital, Input buffer
568	AD12	HADRS[27]	I/O	HOST, Bidirectional buffer	623	VDD	VDD	–	1.2V LOGIC power supply
569	AG11	HADRS[20]	I/O	HOST, Bidirectional buffer	624	AG18	REC656I[6]	I	VIDEO-Digital, Input buffer
570	VDD3	VDD3	–	3.3V I/O power supply	625	GND	GND	–	Ground
571	AH11	HADRS[21]	I/O	HOST, Bidirectional buffer	626	AD17	REC656I[5]	I	VIDEO-Digital, Input buffer
572	VDD	VDD	–	1.2V LOGIC power supply	627	AF18	REC656I[4]	I	VIDEO-Digital, Input buffer
573	AE12	HADRS[19]	I/O	HOST, Bidirectional buffer	628	AE18	REC656I[3]	I	VIDEO-Digital, Input buffer
574	AF12	HADRS[18]	I/O	HOST, Bidirectional buffer	629	AH19	REC656I[2]	I	VIDEO-Digital, Input buffer
575	AG12	HADRS[23]	I/O	HOST, Bidirectional buffer	630	AG19	REC656I[1]	I	VIDEO-Digital, Input buffer
576	GND	GND	–	Ground	631	AF19	REC656I[0]	I	VIDEO-Digital, Input buffer
577	AD13	HADRS[28]	I/O	HOST, Bidirectional buffer	632	AH20	DVVIDEO[7]	I/O	VIDEO-Digital, Bidirectional buffer
578	VDD	VDD	–	1.2V LOGIC power supply	633	AD18	DVVIDEO[6]	I/O	VIDEO-Digital, Bidirectional buffer
579	AH12	HADRS[22]	I/O	HOST, Bidirectional buffer	634	AE19	DVVIDEO[5]	I/O	VIDEO-Digital, Bidirectional buffer
580	GND	GND	–	Ground	635	VDD3	VDD3	–	3.3V I/O power supply
581	AE13	HADRS[29]	I/O	HOST, Bidirectional buffer	636	AG20	DVVCLKI	I	CLOCK, Input buffer
582	VDD	VDD	–	1.2V LOGIC power supply	637	AF20	PLL2AVDD	–	
583	AF13	HADRS[24]	I/O	HOST, Bidirectional buffer	638	AH21	PLL2AVSS	–	
584	VDD3	VDD3	–	3.3V I/O power supply	639	AD19	R656CLKI	I	CLOCK, Input buffer
585	AG13	HADRS[25]	I/O	HOST, Bidirectional buffer	640	GND	GND	–	Ground
586	GND	GND	–	Ground	641	AE20	ADMCLKI	I	CLOCKI, Input buffer
587	AH13	HADRS[26]	I/O	HOST, Bidirectional buffer	642	VDD3	VDD3	–	3.3V I/O power supply
588	GND	GND	–	Ground	643	AG21	DVVIDEO[4]	I/O	VIDEO-Digital, Bidirectional buffer
589	GND	GND	–	Ground	644	AF21	DVVIDEO[3]	I/O	VIDEO-Digital, Bidirectional buffer
590	AD14	TESTMOD[6]	I	TEST, Input buffer	645	AD20	DVVIDEO[2]	I/O	VIDEO-Digital, Bidirectional buffer
591	AE14	VDD	–	1.2V LOGIC power supply	646	AH22	DVVIDEO[1]	I/O	VIDEO-Digital, Bidirectional buffer
592	AF14	TESTMOD[5]	I	TEST, Input buffer	647	AG22	DVVIDEO[0]	I/O	VIDEO-Digital, Bidirectional buffer
593	GND	GND	–	Ground	648	AE21	REC656O[7]	O	VIDEO-Digital, Output buffer
594	AG14	TESTMOD[4]	I	TEST, Input buffer	649	AF22	REC656O[6]	O	VIDEO-Digital, Output buffer
595	VDD	VDD	–	1.2V LOGIC power supply	650	VDD	VDD	–	1.2V LOGIC power supply
596	AH14	TESTMOD[3]	I	TEST, Input buffer	651	AH23	DVREQ	I	VIDEO-Digital, Input buffer
597	GND	GND	–	Ground	652	GND	GND	–	Ground
598	AH15	TESTMOD[2]	I	TEST, Input buffer	653	AG23	DVACK	O	VIDEO-Digital, Output buffer
599	VDD	VDD	–	1.2V LOGIC power supply	654	GND	GND	–	Ground
600	AG15	TESTMOD[1]	I	TEST, Input buffer	655	AE22	AVSS1DA10	–	
601	GND	GND	–	Ground	656	AD21	GOUT	O	VIDEO-Analog
602	AF15	TESTMOD[0]	I	TEST, Input buffer	657	AH24	AVDD1DA10	–	
603	AE15	CSYNC	I	CLOCK, Input buffer	658	AF23	BOUT	O	VIDEO-Analog
604	AD15	VIPWM	O	CLOCK, Output buffer	659	AE23	AVDD1DA10	–	
605	AH16	PLLON	I	TEST, Input buffer	660	AG24	ROUT	O	VIDEO-Analog

No.	BALL Address	Pin Name	I/O	Function	No.	BALL Address	Pin Name	I/O	Function
661	AD22	IREF[0]	–	VIDEO-Analog	669	AD23	REC656O[4]	O	VIDEO-Digital, Output buffer
662	AF24	IREF[1]	–	VIDEO-Analog	670	AH27	REC656O[3]	O	VIDEO-Digital, Output buffer
663	AG25	YOUT	O	VIDEO-Analog	671	AG26	REC656O[2]	O	VIDEO-Digital, Output buffer
664	AH25	AVSS2DA10	–		672	AG27	REC656O[1]	O	VIDEO-Digital, Output buffer
665	AE24	COUT	O	VIDEO-Analog	673	GND	GND	–	Ground
666	AH26	AVDD2DA10	–		674	AD24	REC656O[0]	O	VIDEO-Digital, Output buffer
667	GND	GND	–	Ground	675	AE25	AGCCTL	O	VIDEO-Analog
668	AF25	REC656O[5]	O	VIDEO-Digital, Output buffer					

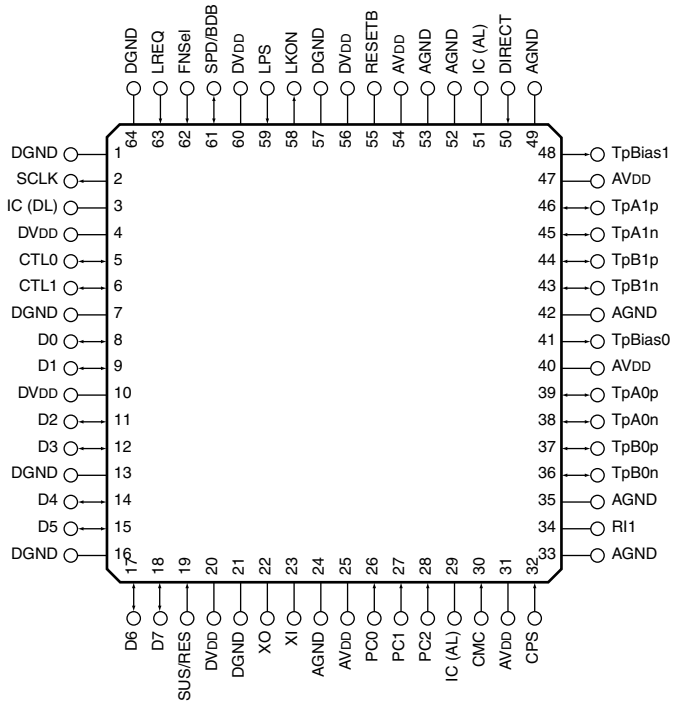
● **Others**

BALL Address	Pin Name	BALL Address	Pin Name	BALL Address	Pin Name	BALL Address	Pin Name
AA23	GND	P12	GND	AC11	VDD	AB23	VDD3
AA6	GND	P13	GND	AC14	VDD	AB6	VDD3
AC12	GND	P14	GND	AC6	VDD	AC10	VDD3
AC17	GND	P15	GND	AC8	VDD	AC13	VDD3
AC20	GND	P16	GND	L6	VDD	AC16	VDD3
AC9	GND	P17	GND	AC11	VDD	AC19	VDD3
F11	GND	R12	GND	AC14	VDD	AC22	VDD3
F14	GND	R13	GND	AC6	VDD	AC7	VDD3
F17	GND	R14	GND	AC8	VDD	F10	VDD3
F20	GND	R15	GND	L6	VDD	F13	VDD3
F23	GND	R16	GND	P6	VDD	F16	VDD3
F8	GND	R17	GND	U6	VDD	F19	VDD3
H6	GND	R23	GND	Y6	VDD	F22	VDD3
J23	GND	R6	GND	F12	VDD	F7	VDD3
M12	GND	T12	GND	F6	VDD	G23	VDD3
M13	GND	T13	GND	F9	VDD	G6	VDD3
M14	GND	T14	GND	J6	VDD	K23	VDD3
M15	GND	T15	GND	AC15	VDD	K6	VDD3
M16	GND	T16	GND	AC18	VDD	N23	VDD3
M17	GND	T17	GND	AC21	VDD	N6	VDD3
M23	GND	U12	GND	AC23	VDD	T23	VDD3
M6	GND	U13	GND	F15	VDD	T6	VDD3
N12	GND	U14	GND	F18	VDD	W23	VDD3
N13	GND	U15	GND	F21	VDD	W6	VDD3
N14	GND	U16	GND	H23	VDD		
N15	GND	U17	GND	L23	VDD		
N16	GND	V23	GND	P23	VDD		
N17	GND	V6	GND	U23	VDD		
				Y23	VDD		

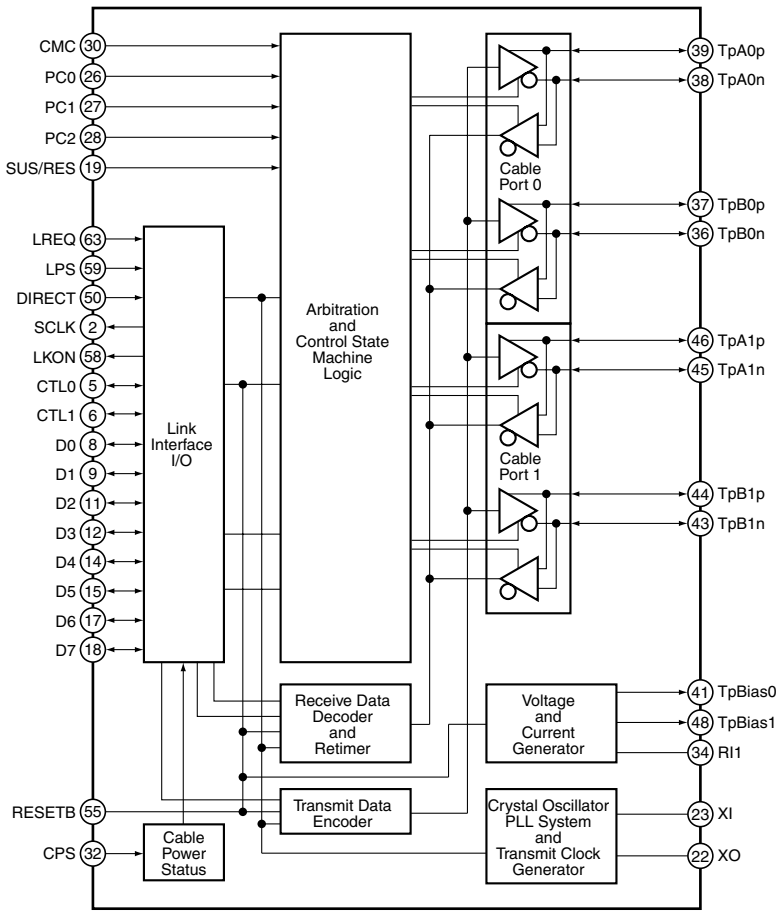
UPD72852AGB-8EU (MAIN ASSY : IC5101)

• IEEE1394 Physical IC

● Pin Arrangement



● Block Diagram



● Pin Function

• Cable Interface Pins

No.	Pin Name	I/O	Function
39	TpA0p	I/O	Port 0 twisted pair cable A positive phase I/O
38	TpA0n	I/O	Port 0 twisted pair cable A negative phase I/O
37	TpB0p	I/O	Port 0 twisted pair cable B positive phase I/O
36	TpB0n	I/O	Port 0 twisted pair cable B negative phase I/O
46	TpA1p	I/O	Port 1 twisted pair cable A positive phase I/O
45	TpA1n	I/O	Port 1 twisted pair cable A negative phase I/O
44	TpB1p	I/O	Port 1 twisted pair cable B positive phase I/O
43	TpB1n	I/O	Port 1 twisted pair cable B negative phase I/O
19	SUS/RES	I	Suspend/Resume function select 1 : Suspend/Resume on (IEEE1394a-2000 compliant) 0 : Suspend/Resume off (P1394a draft 1.3 compliant)
32	CPS	I	Cable power status Connect to the cable through a 390 kΩ resistor and to the GND through a 100 kΩ resistor. 0 : Cable power fail 1 : Cable power on

• Link Interface Pins

No.	Pin Name	I/O	Function
8	D0	I/O	Data input/output (bit 0)
9	D1	I/O	Data input/output (bit 1)
11	D2	I/O	Data input/output (bit 2)
12	D3	I/O	Data input/output (bit 3)
14	D4	I/O	Data input/output (bit 4)
15	D5	I/O	Data input/output (bit 5)
17	D6	I/O	Data input/output (bit 6)
18	D7	I/O	Data input/output (bit 7)
5	CTL0	I/O	Link interface control (bit 0)
6	CTL1	I/O	Link interface control (bit 1)
63	LREQ	I	Link request input
2	SCLK	O	Link control output clock LPS 1 : 49.152 MHz output LPS 0 : Clamp to 0 (The clock signal will be output within 25 μsec after change to "0")
59	LPS	I	Link power status input 0 : Link power off 1 : Link power on (PHY/Link direct connection)
58	LKON	O	Link-on signal output Link-on signal is 6.1444 MHz clock output.
50	DIRECT	I	PHY/Link isolation barrier control input 0 : Isolation barrier 1 : PHY/Link direct connection

• Control Pins

No.	Pin Name	I/O	Function
26	PC0	I	Power class set input This pin status will be loaded to Pwr_class bit which allocated to PHY register 4H. IEEE1394a-2000 chapter [4.3.4.1]
27	PC1	I	
28	PC2	I	
30	CMC	I	Configuration manager capable setting This pin status will be loaded to Contender bit which allocated to PHY register 4H. 0 : Non contender 1 : Contender
55	RESETB	I	Power on reset input Connect to GND through a 0.1 μF capacitor. 0 : Reset 1 : Normal
61	SPD/BDB	I FNSel = 0	Speed select (UPD72852GB) 0 : MAX. S200 1 : MAX. S400
		O FNSel = 1	BIAS Detected output (Logical Inverse) 0 : BIAS is coming from some port. 1 : BIAS is not coming from any port.

• IC

No.	Pin Name	I/O	Function
29, 51	IC (AL)	–	Internally Connected (Low Clamped) Connected to GND.
3	IC (DL)	–	Internally Connected (Low Clamped) Connected to GND.

• Power Supply Pins

No.	Pin Name	I/O	Function
25, 31, 40, 47, 54	AV_{DD}	–	Analog power
24, 33, 35, 42, 49, 52, 53	AGND	–	Analog GND
4, 10, 20, 56, 60	DV_{DD}	–	Digital V_{DD}
1, 7, 13, 16, 21, 57, 64	DGND	–	Digital GND

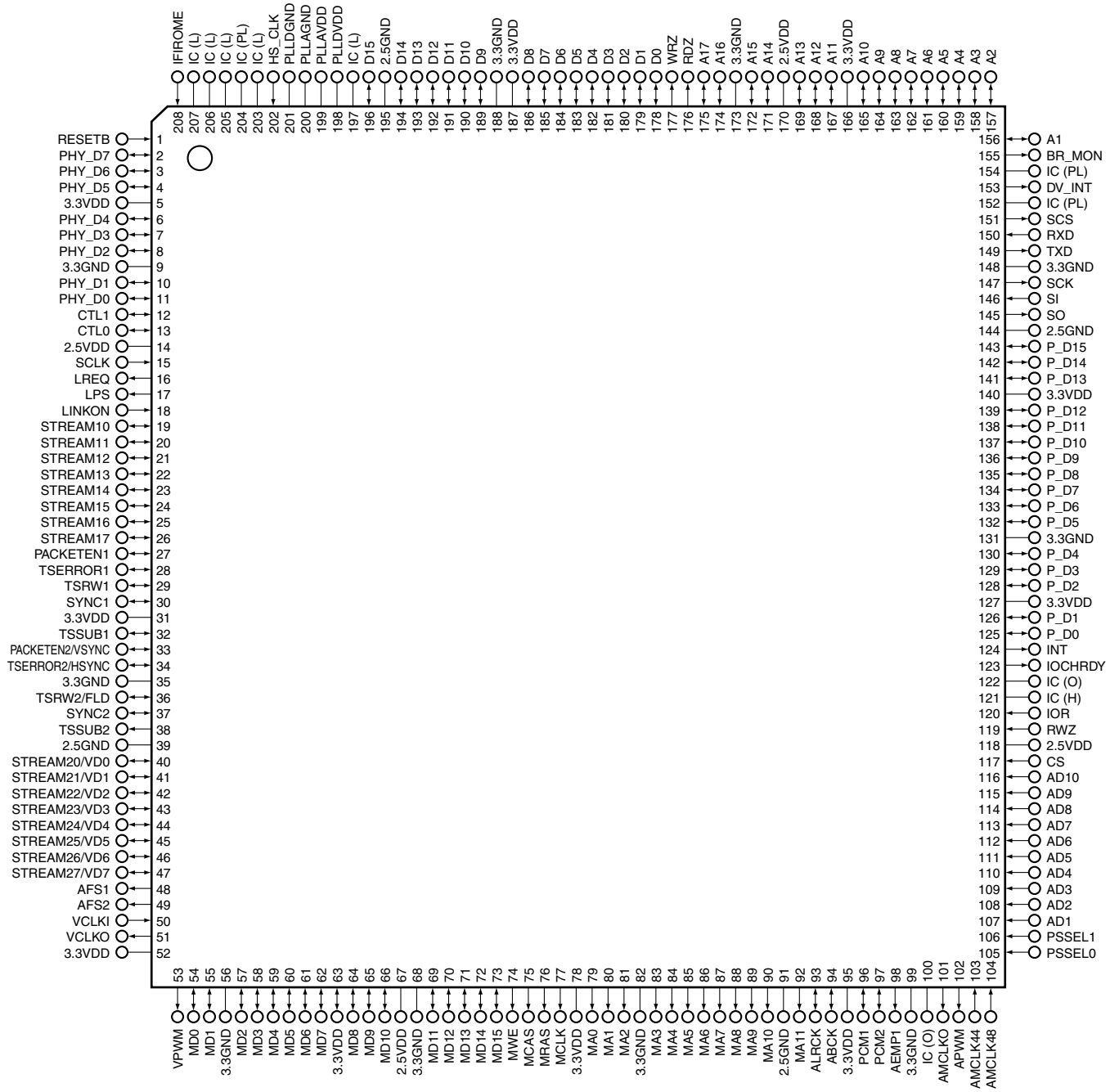
• Other Pins

No.	Pin Name	I/O	Function
41	TpBias0	O	Port 0 twisted pair output
48	TpBias1	O	Port 1 twisted pair output
34	RI1	–	Resistor connection pin 1 for reference current generator Please connect to GND pin through the 9.1 kΩ resistor.
23	XI	–	Crystal oscillator connection XI
22	XO	–	Crystal oscillator connection XO
62	FNSel	I	Function Select 0 : #61 acts as SPD (UPD72852GB compliant) 1 : #61 acts as BDB

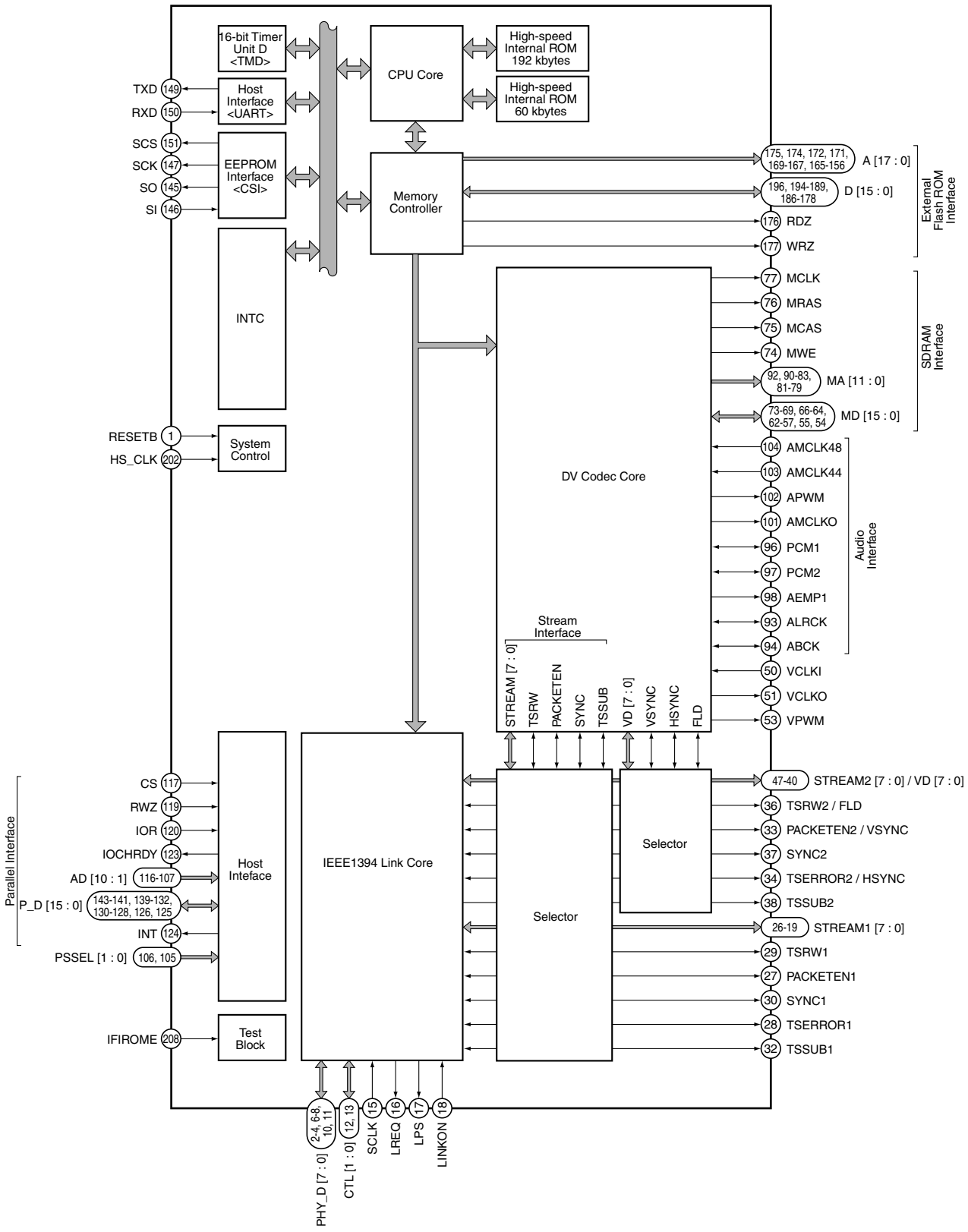
UPD72893BGD-LML (MAIN ASSY : IC5202)

- IEEE1394 Link IC

● Pin Arrangement



● Block Diagram



● Pin Function

(1) Link relation

No.	Pin Name	I/O	Function	Active
18	LINKON	I	Link-on signal input Clock input When LPS is active, input 0.	–
17	LPS	O	Link power status output Link power OFF : 0 Link power ON : 2.7 MHz pulse output (20 dividing of host clock 54 MHz)	–
16	LREQ	O	Link request output	–
15	SCLK	I	Clock input for Link control LPS is active : 49.152 MHz input LPS = 0 0 : fixed	–
12, 13	CTL [1 : 0]	I/O	PHY/Link control signal input/output	–
2-4, 6-8, 10,11	PHY_D [7 : 0]	I/O	Data input/output between PHY-Link	–
26-19	STREAM1 [7 : 0]	I/O	ISO data bus of stream interface 1	–
27	PACKETEN1	I/O	Packet enable signal input/output of stream interface 1	H/L
28	TSERROR1	I/O	Packet error signal input/output of stream interface 1	H/L
29	TSRW1	I/O	Data read/write enable signal input/output of stream interface 1	–
30	SYNC1	I/O	Frame synchronous signal input/output of stream interface 1	H/L
32	TSSUB1	I/O	Not used Connect to VDD or GND through a resistor.	H/L
47-40	STREAM2 [7 : 0]	I/O	ISO data bus of stream interface 2	–
33	PACKETEN2	I/O	Packet enable signal input/output of stream interface 2	H/L
34	TSERROR2	I/O	Packet error signal input/output of stream interface 2	H/L
36	TSRW2	I/O	Data read/write enable signal input/output of stream interface 2	–
37	SYNC2	I/O	Frame synchronous signal input/output of stream interface 2	H/L
38	TSSUB2	O	Not used Set to open.	–

(2) Video interface pins

No.	Pin Name	I/O	Function	Active
50	VCLKI	I	Video clock input (27 MHz)	–
51	VCLKO	O	Video clock output (27 MHz)	–
47-40	VD [7 : 0]	I/O	Video data signal	–
33	VSYNC	I/O	Video vertical sync. signal	L
34	HSYNC	I/O	Video horizontal sync. signal	L
36	FLD	I/O	Field index signal	–
53	VPWM	O	PWM signal for video PLL	–

(3) Audio interface pins

No.	Pin Name	I/O	Function	Active
104	AMCLK48	I	Audio master clock input for sampling frequency 48 kHz	–
103	AMCLK44	I	Audio master clock input for sampling frequency 44 kHz	–
101	AMCLKO	O	Audio master clock output	–
96	PCM1	I/O	Audio PCM serial data At 2ch : System 1 (data of audio block 1) At 4ch : System 1 The above is default setting value. Input/output data of PCM 1 and PCM 2 is replaced by Channel swap setting of an AUDIO_FUNC register.	–
97	PCM2	I/O	Audio PCM serial data At 2ch : Mute At 4ch : System 2 (data of audio block 2) The above is default setting value. Input/output data of PCM 1 and PCM 2 is replaced by Channel swap setting of an AUDIO_FUNC register. Note: Cannot use it in DV decode.	–
98	AEMP1	O	PCM1 emphasis ON/OFF in PCM 1 output	H
93	ALRCK	I/O	Audio LR clock L ch : High R ch : Low	–
94	ABCK	I/O	Audio bit clock	–
49, 48	AFS [2 : 1]	O	Audio sampling frequency AFS2 AFS1 44.1 kHz 0 1 48 kHz 0 0 32 kHz 1 0	–
102	APWM	O	PWM signal for audio PLL	–

(4) SDRAM interface pins

No.	Pin Name	I/O	Function	Active
77	MCLK	O	CLK pin connection of SDRAM	–
76	MRAS	O	RAS pin connection of SDRAM	–
75	MCAS	O	CAS pin connection of SDRAM	–
74	MWE	O	WE pin connection of SDRAM	–
92, 90-83, 81-79	MA [11 : 0]	O	Address pin connection of SDRAM	–
73-69, 66-64, 62-57, 55, 54	MD [15 : 0]	I/O	Data pin connection of SDRAM Note: Process of pull-up or pull down is necessary. So connect it to SDRAM directly.	–

(5) Host interface pins

(a) Parallel interface pins

No.	Pin Name	I/O	Function	Active
117	CS	I	Chip select input of parallel interface	L
119	RWZ	I	Read and write control input of parallel interface ISA type bus, SH-1 bus: Write strobe 68000 bus : Read/write selection signal	L
120	IOR	I	IO read control input of parallel interface ISA type bus, SH-1 bus : Read strobe 68000 bus : Data strobe (DS)	L
123	IOCHRDY	O	Ready output of parallel interface	L
116-107	AD [10 : 1]	I	Address input of parallel interface	–
143-141, 139-132, 130-128, 126, 125	P_D [15 : 0]	I/O	Data input/output of parallel interface	–

(b) Serial interface pins

No.	Pin Name	I/O	Function	Active
149	TXD	I/O	Serial transmission data output of unsynchronous serial interface (UART)	–
150	RXD	I/O	Serial transmission data input of unsynchronous serial interface (UART)	–

(c) Others

No.	Pin Name	I/O	Function	Active
124	INT	O	Interrupt output to the outside	H
106, 105	PSSEL [1 : 0]	I	Parallel/serial interface selection Input signal to select the outside interface which of parallel interface or serial interface. PSSEL [1 : 0] Select 00 Serial interface (UART) 01 Parallel interface (ISA type bus) 10 Parallel interface (68000 bus) 11 Parallel interface (SH-1 bus)	–

(6) External ROM connection pins

(a) Flash ROM interface pins

No.	Pin Name	I/O	Function	Active
196, 194-189, 186-178	D [15 : 0]	I/O	External ROM data bus Data bus in the external ROM access. Process of pull-up or pull down is necessary.	–
175, 174, 172, 171, 169-167, 165-156	A [17 : 1]	O	External ROM address bus Address bus in the external ROM access. Can addressing the 256k byte space.	–
176	RDZ	O	ROM read Strobe signal which shows a read cycle for external ROM. It becomes the inactive in the idle state.	L
177	WRZ	O	ROM write Strobe signal which shows a write cycle for external ROM.	L

(b) EEPROM interface pins

No.	Pin Name	I/O	Function	Active
145	SO	I/O	Serial transmit data output of clock-synchronous system serial interface (CSI)	–
146	SI	I/O	Serial receive data input of clock-synchronous system serial interface (CSI)	–
147	SCK	I/O	Clock output of clock-synchronous system serial interface (CSI)	–
151	SCS	I/O	Chip select output of clock-synchronous system serial interface (CSI)	–

(7) Clock and reset pins

No.	Pin Name	I/O	Function	Active
1	RESETB	I	Reset RESETB input is asynchronous input. When a signal of fixed low-level width is input without relation to an operation clock, take precedence of all operation, and reset the system. Note: RESETB is low-active.	L
202	HS_CLK	I	Host clock Clock input pin which is supplied to CPU core and built-in peripheral I/O. Please input 27 MHz clock. Perform 2 multiply with internal PLL by 27 MHz clock, 54 MHz clock is supplied to CPU core and internal peripheral I/O.	–

(8) Power supply and ground pins

No.	Pin Name	I/O	Function	Active
5, 31, 52, 63, 78, 95, 127, 140, 166, 187	3.3VDD	–	3.3V power supply 3.3V positive power supply pins. Power supply for 3.3V interface I/O.	–
14, 67, 118, 170	2.5VDD	–	2.5V power supply 2.5V positive power supply pins. Power supply for internal each block.	–
39, 91, 144, 195	2.5GND	–	Ground pins Connect all GND pins to the common ground.	–
9, 35, 56, 68, 82, 99, 131, 148, 173, 188	3.3GND			–
199	PLLAVDD	–	Analog power supply for multiply circuit Analog positive power supply pin for PLL. Supply 2.5V.	–
200	PLLAGND	–	Analog ground for multiply circuit Analog ground for PLL	–
198	PLLDVDD	–	Digital power supply for multiply circuit Digital positive power supply pin for PLL. Supply 2.5V.	–
201	PLLDGND	–	Digital ground for multiply circuit Digital ground for PLL	–
121	IC (H)	–	Internally connected pin Connect to VDD directly.	–
197, 203, 205-207	IC (L)	–	Internally connected pin Connect to ground directly.	–
152, 154, 204	IC (PL)	–	Internally connected pin Connect to ground through a resistor.	–
100, 122	IC (O)	–	Internally connected pin Set to open.	–

(9) Others

No.	Pin Name	I/O	Function	Active
153	DV_INT	I/O	Interrupt pin to the outside for the DV status read out.	H
155	BR_MON	I/O	Shows the bus reset occurred. There is some delay after real bus reset occurred because of set by the built-in firmware.	H
208	IFIROME	I	ROM operation selection input Set to 1 normally.	–

7.3 CAUTIONS ON HANDLING THE HDD

(1) Cautions on Handling the HDD

- The HDD is very sensitive to shocks and vibrations. Care must be taken especially during operation (when the power is on).
- The HDD is very sensitive to electrostatic charges.
- Rapid change in temperature or humidity may cause deterioration of the HDD.

Note: After receiving damage caused by any above-mentioned factors, the HDD may operate normally for dozens or some hundreds of hours but then suddenly crash. If you are certain you have damaged a new repair part (HDD) while making repairs, do not use the part.

The HDD is about 10 times as sensitive to shock during operation than during nonoperation.

Reference: Main specifications on damage to the HDD

	During operation	During nonoperation
Shock G (acceleration)	<approx. 20 G	<approx. 200 G
Temperature change	< 20°C/hour	
Moisture change	< 20%/hour	

Reference: Estimate value of falling distance vs. shock (G) when the HDD is dropped without protection

Falling distance \ Landing surface	Granite surface	Concrete floor	Synthetic-resin-coated table	Antistatic sponge
0.5 inch / 12.7 mm	387	217	200	26
1.0 inch / 25.4 mm	595	457	310	37
2.0 inch / 50.8 mm	1133	600	680	70
4.0 inch / 101.6 mm	1795	1040	1050	267

(2) Cautions on handling the product on which the HDD is mounted or the HDD as a repair part, and examples of dangerous handling

[Cautions on handling the product on which the HDD is mounted]

- While the unit is turned on, the HDD is always in operation. Be sure NOT to impart shock to the unit.

● Examples of dangerous handling: while the power is on

- Bumping on the bonnet
- Dropping an object, such as a small screwdriver or remote control unit, onto the bonnet, or bumping an object against the cabinet
- Moving the unit by dragging
- Stacking another product on the unit

Note: Be sure NOT to impart shock, such as bumping or hitting a screwdriver against the HDD, during diagnosis with the bonnet open.

● Examples of dangerous handling: while the power is off

- Imparting strong shock, although the HDD is more resistant to shock when the power is off
- Dropping the unit from a height of several centimeters, or after lifting one side of the unit up, then letting the unit drop.

- Do NOT move the unit immediately after the power is turned off. Wait at least 30 seconds after the indication on the FL display changed from POWER OFF to the clock indication before moving the unit.
  If the AC power cord is accidentally disconnected before turning the unit off, wait at least for one minute before moving it. In this case, damage to the HDD caused by sudden shutoff may be small, because the emergency relief mechanism is activated. However, if sudden shutoff occurs during recording or playback, recorded data may be damaged. Be sure to check operations.

[Cautions on handling the HDD as a repair part]

1. Handle the HDD in a safe environment:
   - Handle the HDD over an antistatic pad that can also absorb shock.
   - Wear wrist bands to prevent electrostatic charges generated in your body from affecting the HDD.

2. The following must be observed when handling the HDD:
   - Handle one HDD at a time. Do NOT hold several HDDs at the same time.
   - Grip the HDD on both sides so that you do not touch its terminals or circuit boards.
   - Do NOT stack one HDD onto another HDD (even if the HDDs are protected in antistatic bags).
   - Do NOT bump the HDDs against one another.
   - Do NOT bump any tool, such as a screwdriver, or other hard object against the HDD.
   - When a repair part (HDD) is transported and there is a large temperature difference between outdoors and indoors, to the indoor, leave it in its package for about a half day to gradually cool or warm the HDD to room temperature before unpacking it.

[Notes on packing for shipment]

- When returning a defective HDD for analysis, handle with care as if it were a good product. Otherwise, the results of analysis may not be correct.
- When packing, use the antistatic bag and packing materials in which the repair part for service was delivered. Attach a copy of the slip for service or a memo stating symptoms in as much detail as possible.

■ Outline and part No. of the HDDs

*Pioneer's part No. is not stamped.

Model Name	Capacity	Maxtor		Western Digital		Seagate	
		Pioneer's Part No. (for service)	Manufacture's Part No.	Pioneer's Part No. (for service)	Manufacture's Part No.	Pioneer's Part No. (for service)	Manufacture's Part No.
XV-DVR9H	80GB	VXF1010	4R080L0-	VXF1043	WD800BB -xxHEAx	VXF1036	ST38001□ACE-

- When replacing the HDD, carefully check the capacity and manufacturer's part No. on the part label to avoid replacing with a similar but inappropriate product. You can also check the model No. of the mounted HDD on the Service mode screen.
- Do NOT use repair parts, such as commercially available HDDs, other than those designated above, as their functions, performance or reliability cannot be guaranteed.

Maxtor

Western Digital (80GB)

Western Digital (160GB) (Reference)

Note : The body of HDD 80GB and 160GB/250GB types (Reference) of Western Digital are different.

Seagate

How to read the information of Seagate HDD

Ex. Date Code 0435x
04 year (from July)
manufactured on 35th week

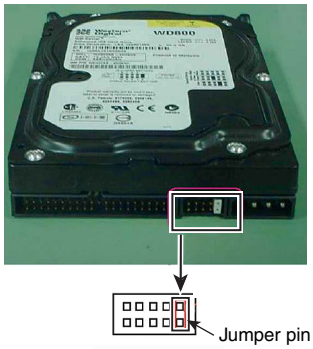
Fig.1 Location of the data on capacity and part No. of the HDD

■ Confirmation of the jumper pin location of the HDD

Maxtor

Setting : Cable Select(CS)

Western Digital



Setting : Cable Select(CS)

Seagate

Setting : Cable Select(CS)

7.4 DISC/CONTENT FORMAT

Disc / content format playback compatibility

General disc compatibility

This system is compatible with a wide range of disc types (media) and formats. Playable discs will generally feature one of the following logos on the disc and / or disc packaging. Note however that some disc types, such as recordable CD and DVD, may be in an unplayable formatósee below for further compatibility information.

DVD-Video DVD-R DVD-RW

Audio CD Video CD CD-R CD-RW

Fujicolor CD

- Also compatible with KODAK Picture CD
- is a trademark of DVD Format/Logo Licensing Corporation.
- is a trademark of Fuji Photo Film Co. Ltd.

This system also supports the IECís Super VCD standard. Compared to the Video CD standard, Super VCD offers superior picture quality, and allows two soundtracks to be recorded. Super VCD also supports the widescreen size.

Super Video CD (Super VCD)

DVD-R/RW compatibility

This system will play and record DVD-R/RW discs.

Compatible media:

- DVD-RW Ver. 1.1, Ver. 1.1 / 2x and Ver. 1.2 / 4x
- DVD-R Ver. 2.0 and Ver. 2.0 / 4x / 8x

Recording formats:

- DVD-R: DVD-Video format (Video mode)
- DVD-RW: Video Recording (VR) format and DVD-Video format (Video mode)

Older models of DVD recorders and DVD writers may reject DVD-RW Ver. 1.2 / 4x discs. To share DVD-RW discs between this recorder and an older recorder/writer, we recommending Ver. 1.1 discs[1].

The following table shows older Pioneer DVD recorder compatibility with DVD-RW Ver. 1.2 / 4x discs.

Model	Playable	Recordable
DVR-7000	Yes[1,2,3]	No
DVR-310/ DVR-510H	Yes[1]	No

[1] Discs should be finalized in this recorder before playing. Unfinalized VR mode and Video mode discs may not play.

[2] **Cannot read the CPRM information** will show in the display when you load a disc. However, this will not affect playback.

[3] Copy-once protected disc titles will not play.

CD-R/RW compatibility

This system cannot record CD-R or CD-RW discs.

- Compatible formats: CD-Audio, Video CD/Super VCD, ISO 9660 CD-ROM* containing MP3, WMA or JPEG files
  * ISO 9660 Level 1 or 2 compliant. CD physical format: Mode1, Mode2 XA Form1. Romeo and Joliet file systems are both compatible with this system.
- Multi-session playback: Yes (except CD-Audio and Video CD/Super VCD)
- Unfinalized disc playback: CD-Audio only

Compressed audio compatibility

- Compatible media: CD-ROM, CD-R, CD-RW
- Compatible formats: MPEG-1 Audio Layer 3 (MP3), Windows Media Audio (WMA)
- Sampling rates: 44.1 or 48kHz
- Bit-rates: Any (128Kbps or higher recommended)
- Variable bit-rate (VBR) MP3 playback: Yes
- VBR WMA playback: No
- WMA encoder compatibility: Windows Media Codec 8 *(files encoded using Windows Media Codec 9 may be playable but some parts of the specification are not supported; specifically, Pro, Lossless, Voice and VBR)*
- DRM (Digital Rights Management) file playback: No (see also DRM in the *Glossary* on page 136)
- File extensions: .mp3, .wma (these must be used for the system to recognize MP3 and WMA files - do not use for other file types)
- File structure: Up to 99 folders / 999 files (if these limits are exceeded, only files and folders up to these limits are playable)

WMA (Windows Media Audio) compatibility

The Windows Media® logo printed on the box indicates that this system can playback Windows Media Audio content.

WMA is an acronym for Windows Media Audio and refers to an audio compression technology developed by Microsoft Corporation. WMA content can be encoded by using Windows Media Player version 7, 7.1, Windows Media® Player for Windows® XP, or Windows Media® Player 9 Series.

Microsoft, Windows Media, and the Windows logo are trademarks, or registered trademarks of Microsoft Corporation in the United States and/or other countries.

JPEG file compatibility

- Compatible formats: Baseline JPEG and EXIF 2.2* still image files
  * *File format used by digital still cameras*
- Sampling ratio: 4:4:4, 4:4:2, 4:2:0
- Horizontal resolution: 160 – 5120 pixels
- Vertical resolution: 120 – 3840 pixels
- Progressive JPEG compatible: No
- File extensions: .jpg, jpeg, jif, jfif (must be used for the system to recognize JPEG files – do not use for other file types)
- File structure: The system can load up to 99 folders / 999 files at one time *(if there are more files/folders that this on the disc then more can be reloaded)*

PC-created disc compatibility

Discs recorded using a personal computer may not be playable in this unit due to the setting of the application software used to create the disc. In these particular instances, check with the software publisher for more detailed information.

Discs recorded in packet write mode (UDF format) are not compatible with this system.

Check the DVD-R/RW or CD-R/RW software disc boxes for additional compatibility information.

7.5 CLEANING

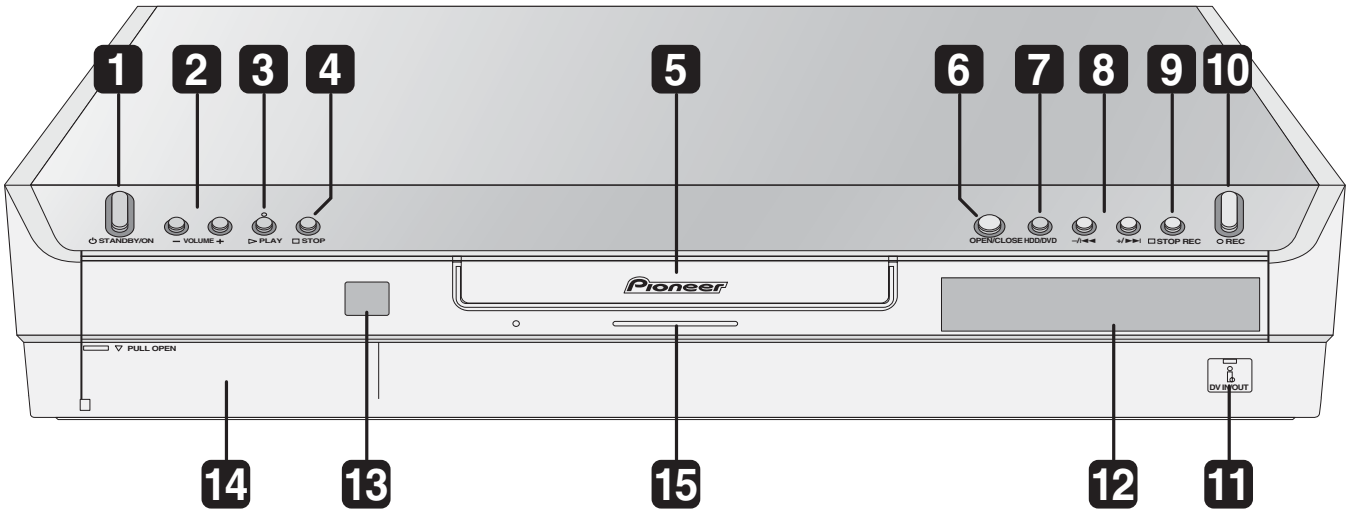
Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools:

Position to be cleaned	Cleaning tools
Pickup lenses	Cleaning liquid : GEM1004 Cleaning paper : GED-008

Position to be cleaned	Cleaning tools
Fans	Cleaning paper : GED-008

8. PANEL FACILITIES

Front panel



1 ⏻ STANDBY/ON
Press to switch the system on/into standby.

2 VOLUME buttons
Use to adjust the volume.

3 ► PLAY
Press to start or restart playback.

4 ■ STOP
Press to stop playback.

5 Disc tray

6 ⏏ OPEN/CLOSE
Press to open/close the disc tray.

7 HDD/DVD
Press to switch between the hard disk drive (HDD) and DVD for recording and playback.

8 –/I◄◄ +/►►I
Use to change TV channels, skip chapters/tracks, etc.

9 □ STOP REC
Press to stop recording.

10 ● REC
Press to start recording.

11 DV IN/OUT jack
Digital input/output jack for use with a DV camcorder.

12 Front panel display
See *Display* on page 14 for details.

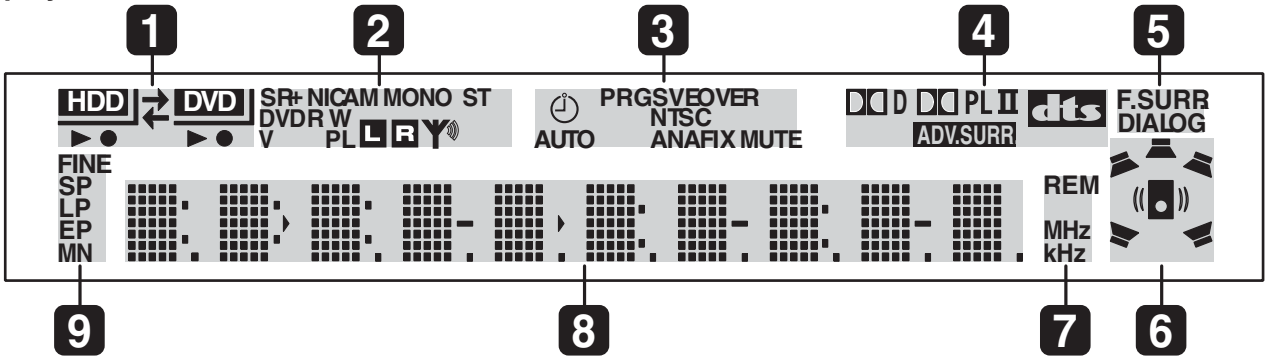
13 IR remote sensor

14 Front panel inputs and headphones jack

Pull the cover down where indicated to access the front panel input jacks. Especially convenient for connecting camcorders and other portable equipment.

15 HDD indicator
Lights blue when the HDD is selected.

Display



1 HDD and DVD playback / recording indicators
(HDD ⇄ DVD)
Arrows indicate the copy direction between the HDD (HDD)and DVD (DVD).

► PLAY / ● REC indicators
Lights during playback / recording; blinks when playback / recording is paused.

2 SR+
Lights when the SR+ control mode is on.
NICAM
Lights when the broadcast audio is NICAM encoded.
MONO
Lights when a FM radio mono reception is selected.
ST
Lights when a FM radio broadcast is being received in auto stereo mode.
DVD / R / W
Indicates the type of recordable DVD loaded: DVD-R or DVD-RW.
V
Lights when an unfinalized Video mode disc is loaded.
PL
Lights when a VR mode disc is loaded and the system is in Play List mode.
L R
Indicates which channels of a bilingual broadcast are recorded.
Lights when a radio broadcast is being received.

3
Lights when a timer recording has been set.
(Indicator blinks if the timer has been set to DVD but there isnít a recordable disc loaded, or the timer has been set to HDD but the HDD is not recordable).
AUTO
Lights when Auto Start Recording has been set, and during Auto Start Recording.
PRGSVE
Lights when progressive scan video output is selected.
OVER
Lights when the **LINE1**or **LINE2** input level is too high.

NTSC
Lights when playing NTSC format video.
ANA FIX
Lights when the Analog out mode is set to **Fix** .

MUTE
Lights to indicate that the system is muted.

4
Lights during playback of a Dolby Digital source.
PL II
Lights during Dolby Pro Logic II decoding.
dts
Lights during playback of a DTS source.
ADV.SURR
Lights when one of the Advanced or Front Surround listening modes is selected.

5 F.SURR.
Lights when playing in Front Surround mode.
DIALOG
Lights when dialogue enhancement is on.

6 Speaker indicators
These show which speakers are being used to output the current source (they are not placement diagrams). The illustrations below show some example displays.

5.1 channel surround sound

Stereo (2.1 channel) sound

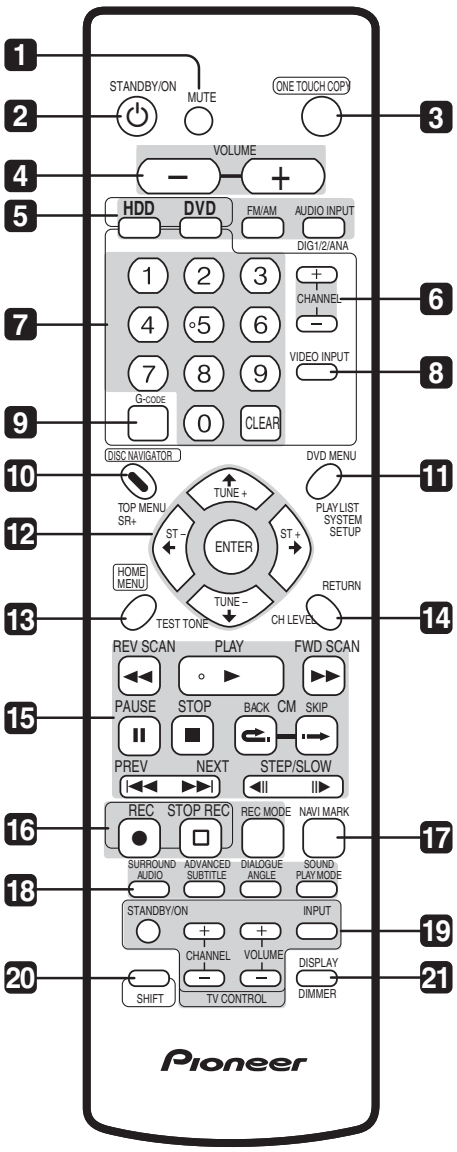
3.1 channel sound

7 REM
Lights when the character display is showing the remaining available recording time.
kHz / MHz
Indicates the unit of the frequency shown in the character display (**kHz** for AM, **MHz** for FM).

8 Character display

9 Recording quality indicators
FINE
Lights when the recording mode is set to **FINE** (best quality).
SP
Lights when the recording mode is set to **SP** (standard play).
LP
Lights when the recording mode is set to **LP** (long play).
EP
Lights when the recording mode is set to **EP**(extended play).
MN
Lights when the recording mode is set to **MN** (manual recording level) mode.

Remote control



Important

- Functions printed in green on the remote control are accessed by pressing the button indicated while holding down the **SHIFT** button.

1 MUTE
Press to mute all audio from the speakers and headphones. Press again to cancel and restore the sound.

2 ⏻ STANDBY/ON
Press to switch the system on or into standby.

3 ONE TOUCH COPY
Press to start One Touch Copy of the currently playing title to DVD or the HDD.

4 VOLUME +/–
Use to adjust the volume.

5 Function select buttons
HDD
Press to select the hard disk (HDD) for recording or playback.
DVD
Press to select the DVD for recording or playback.
FM/AM
Press to select the built-in radio tuner.
AUDIO INPUT
Press repeatedly to select one of the external audio inputs (**DIGITAL 1**, **2**, or **ANALOG**).

6 CHANNEL +/–
Press to change the channel of the built-in TV tuner.

7 Numeric buttons and CLEAR
Use the number buttons for track/chapter/title selection; channel selection, and so on.
Use **CLEAR** to clear an entry and start again.

8 VIDEO INPUT
Press to change the input for recording and playback.

9 G-CODE
Press, then use the number buttons to enter a G-Code programming number for timer recording.

10 DISC NAVIGATOR / TOP MENU

Press to display the Disc Navigator screen, or the top menu if a DVD-Video disc is loaded.

+ SHIFT: SR+
Press to setup SR+ and switch SR+ control on/off.

11 PLAYLIST / DVD MENU
Press to switch between Original and Play List content on VR mode discs, or display the disc menu if a DVD-Video disc is loaded.

+ SHIFT: SYSTEM SETUP
Use to access the menu system for surround sound setup, tuner settings and so on.

12 ⬆/⬇/⬅/➡ (cursor buttons) and ENTER
Used to navigate all on-screen displays. Press **ENTER**to select the currently highlighted option.

TUNE +/–
Use to tune the radio.
ST +/–
Use to select station presets when listening to the radio.

13 HOME MENU

Press to display the Home Menu, from which you can navigate many the functions of the system.

+ SHIFT : TEST TONE

Use to output the test tone (for speaker setup).

14 RETURN

Press to go back one level in the on-screen menu or display.

+ SHIFT : CH LEVEL

Use to adjust the speaker level.

15 Playback controls

◄◄ REV SCAN / FWD SCAN ►►

Press to start reverse or forward scanning. Press again to change the speed.

► PLAY

Press to start playback.

II PAUSE

Press to pause playback or recording.

■ STOP

Press to stop playback.

CM BACK (commercial back)

Press repeatedly to skip progressively backward through the audio or video playing.

CM SKIP (commercial skip)

Press repeatedly to skip progressively forward through the audio or video playing.

I◄◄ PREV / NEXT ►►I

Press to skip to the previous or next title/chapter/track/folder; or to display the previous or next menu page.

◄II STEP/SLOW II►

During playback, press to start slow-motion playback; while paused, press to show the previous or next video frame.

16 Recording controls

● REC

Press to start recording. Press repeatedly to set the recording time in blocks of 30 mins.

□ STOP REC

Press to stop recording.

REC MODE

Press repeatedly to change the recording mode (picture quality).

17 NAVI MARK

Press to select a thumbnail picture for the current title for use in the Disc Navigator screen.

18 DVD playback functions and surround sound mode/sound enhancement buttons

AUDIO

Changes the audio language or channel. (When no disc is playing or recording, press to change the tuner audio.)

+ SHIFT: SURROUND

Use to select a Surround mode.

SUBTITLE

Displays/changes the subtitles included in multilingual DVD-Video discs.

+ SHIFT: ADVANCED

Use to select an Advanced Surround mode.

ANGLE

Switches camera angles on discs with multi-angle scenes.

+ SHIFT: DIALOGUE

Use to select a Dialogue mode.

PLAY MODE

Press to display the Play Mode menu (for features such as search, repeat and program play).

+ SHIFT: SOUND

Press to access the sound menu, from which you can adjust bass and treble, etc.

19 TV CONTROL

After setting up, use these controls to control your TV.

20 SHIFT

Press to access functions on the remote printed in green.

21 DISPLAY

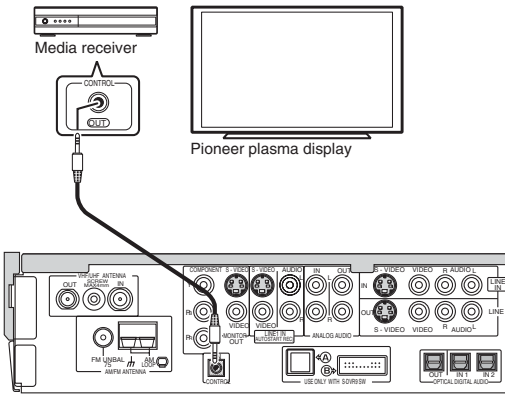
Displays/changes the on-screen information displays.

+ SHIFT : DIMMER

Press to switch between normal and dimmed front panel display.

Using this unit with a Pioneer plasma display

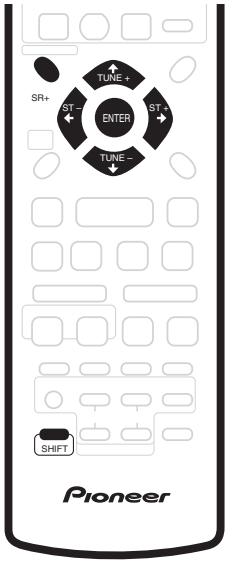
If you have a Pioneer plasma display (models PDP-505HDG, PDP-435HDG), you can use an SR+ cable (see note below) to connect it to this unit and take advantage of various convenient features, such as automatic video input switching of the plasma display when the input is changed and front panel display messages also appearing on the plasma display screen.



XV-DVR9H

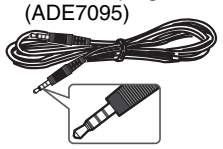
- **Use a 3-ringed miniplug SR+ cable (not supllied) to connect the CONTROL IN jack of this unit through a media receiver to the CONTROL OUT jack of your plasma display.**

Before you can use the extra SR+ features, you need to make a few settings in the unit.



SERVICE PARTS

- SR+ mini-plug cable (ADE7095)



Note

- The 3-ringed SR+ cable from Pioneer is commercially available under the part number ADE7095. Contact the Pioneer Customer Support division for more information on obtaining an SR+ cable.
- You won't be able to use the remote sensor of this unit with the **CONTROL IN** jack of this unit connected to the **CONTROL OUT** jack of your plasma display. You can use the remote sensor of the plasma display (even in standby) as long as the power isnít switched off.
- The number of video inputs available will depend on the plasma display you've connected.
- The **PDP5** input may be called 'PC Input' (or similar) on your plasma display.
- The SR+ setting remains in effect even in standby.

Switching SR+ control on/off

1 Press SHIFT and SR+.

2 Use the ⬅/➡ (cursor left/right) buttons to choose 'SR+ On?' or 'SR+ Off?'.

- **SR+ On** – Switches SR+ on (this unit sends control signals to the plasma display)
- **SR+ Off** – Switches SR+ off (this unit and the plasma display work independently)

3 Press ENTER.

The **SR+** indicator lights in the display when SR+ control is on.

Control mode settings

1 Press SHIFT and SR+.

2 Use the ⬅/➡ (cursor left/right) buttons to choose 'SR+ SetUp?', then press ENTER.

3 Use the ⬅/➡ (cursor left/right) buttons to choose the setting you want to adjust.

The current setting is shown for each option as you cycle through the display. See below for a full list and description of each.

4 Use the ⬆/⬇ (cursor up/down) buttons to adjust the setting.

5 Repeat steps 2 and 3 to make other settings.

6 When you're done, press ENTER to leave the System Setup menu.

Volume control setting

- **Vol. Ctrl Off** – This unit does not control the volume of the plasma display
- **Vol. Ctrl On** – When this unit is switched to an input that used the plasma display (DVD, for example), the volume on the plasma display is muted so only sound from this unit is heard.

Function setting for HDD/DVD

- **HDD -> None/PDP1–5/PDPTV** – Matches the HDD/DVD function of this unit with a numbered video input on the plasma display. For example, **HDD -> PDP2** matches the HDD/DVD input with video input 2 on the plasma display.

Function setting for digital input

- **DIG.1 -> None/PDP1–5/PDPTV** – Matches the digital input 1 function of this unit with a numbered video input on the plasma display. For example, **DIG.1 -> PDP3** matches digital input 1 with video input 3 on the plasma display.

Function setting for DIG.2 input

- **DIG.2 -> None/PDP1–5/PDPTV** – Matches the digital input 2 function of this unit with a numbered video input on the plasma display. For example, **DIG.2 -> PDP3** matches digital input 2 with video input 3 on the plasma display.

Function setting for analog input

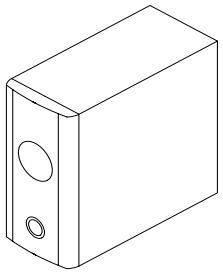
- **ANA -> None/PDP1–5/PDPTV** – Matches the **ANALOG** function of this unit with a numbered video input on the plasma display. For example, **ANA -> PDP1** matches the analog input with video input 1 on the plasma display.

■ Jigs list

Name	Jig No.	Remarks
Service Remote Control Unit	GGF1381	adjustment, diagnosis
DVD Test Disc (DVD-Video)	GGV1025	Check of DVD-Video
DVD Recorder Data Disc	GGV1179	diagnosis (ID data setting)
Extension Cable	GGD1315	diagnosis (Extension for CONTROL- JACK)

Pioneer sound.vision.soul

Service Manual



S-DVR9SW

ORDER NO.
RRV3054

POWERED SUBWOOFER

S-DVR9SW

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Remarks
S-DVR9SW	WLXJI	AC220-240V	
S-DVR9SW	YPWXJI	AC240V	

This product does not function properly when independent ; to avoid malfunctions, be sure to connect it to the prescribed system component(s), otherwise damage may result.

Component	System	Service Manual	Remarks
DVD-RW/HDD TUNER	XV-DVR9H	RRV3063	
POWERED SUBWOOFER	S-DVR9SW	RRV3054	This manual
SPEAKER SYSTEM	S-DVR9ST/XJC/E	RRV3066	

For details, refer to "Important Check Points for Good Servicing".

PIONEER CORPORATION 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS (USA) INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936
ⓒ**PIONEER CORPORATION 2004**

T-ZZR DEC. 2004 printed in Japan

SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 – Proposition 65

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

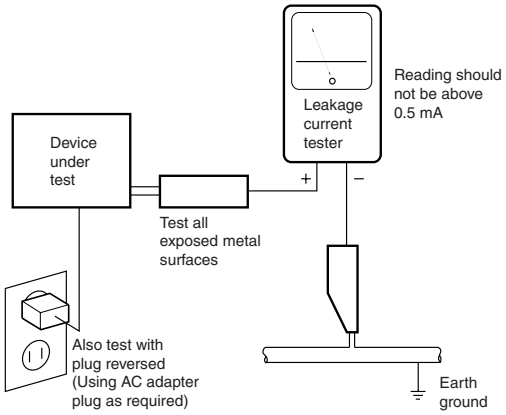
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.


Reading should not be above 0.5 mA
Leakage current tester
Device under test
+
–
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

1. Product safety

Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

2. Adjustments

To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts

Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

4. Cleaning

For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws

To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

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1. SPECIFICATIONS

General

Power requirements. . . . . 220–240 V, 50/60 Hz(WL)
Power requirements . . . . . 240 V, 50/60 Hz(YPW)
Power consumption
S-DVR9SW . . . . . 151 W
Power consumption in standby
S-DVR9SW . . . . . 0 W

Amplifier section

Continuous Power Output (RMS):
Front, Center, Surround . . . . . .100 W per channel
(1 kHz, 10 % T.H.D., 6 Ω)
Subwoofer . . . . . 100 W (100 Hz, 10 % T.H.D., 6 Ω)

Powered subwoofer (S-DVR9SW)

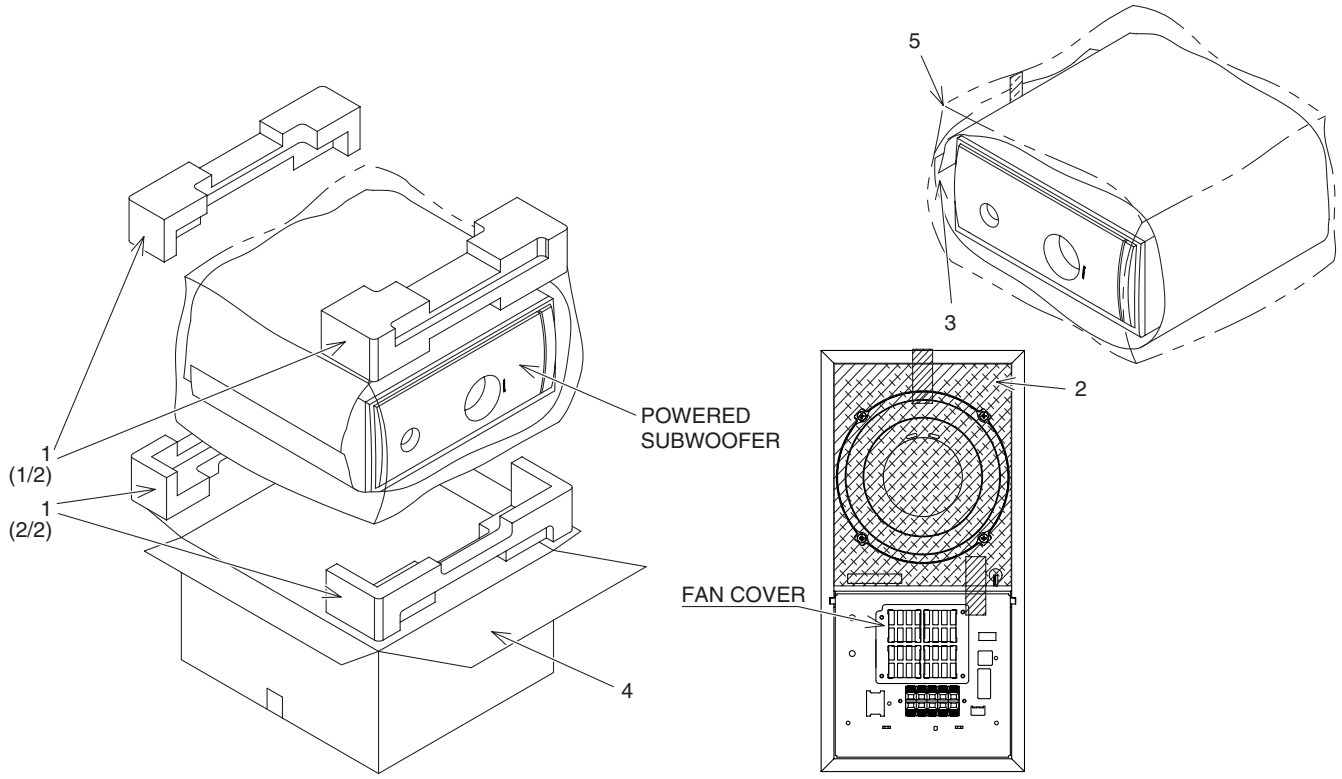
Enclosure . . . . . .Bass-reflex floor type
(magnetically shielded)
System . . . . . 18 cm 1-way system
Speaker . . . . . 18 cm (cone type)
Nominal impedance . . . . . 6 Ω
Frequency range . . . . . 25 Hz to 2300 Hz
Maximum Input Power . . . . . 100 W
Dimensions . . . . . .192 (W) x 395 (H) x 436 (D) mm
Weight. . . . . 12.5 kg

Note: The specifications and design of this product are subject to change without notice, due to improvement.

2. EXPLODED VIEWS AND PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on product are used for disassembly.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*

2.1 PACKING



PACKING parts List

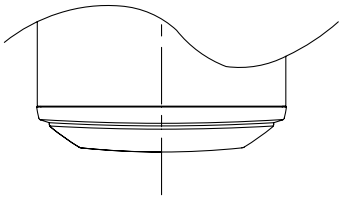
Mark	No.	Description	Part No.
	1	Protector	SHA2379
	2	Protector	SHB1097
	3	Protection Sheet	SHC1790
	4	Packing Case	See Contrast table (2)
	5	Poly Bag S6	SHL1396

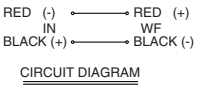
(2) CONTRAST TABLE

S-DVR9SW/WLXJI and S-DVR9SW/YPWXJI are constructed the same except for the following:

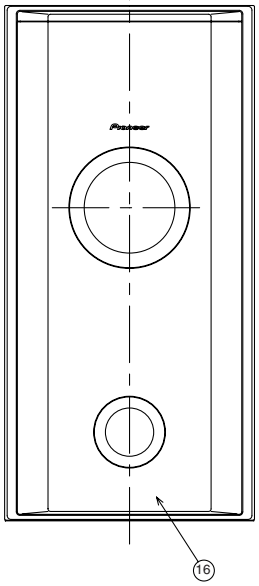
Mark	No.	Symbol and Description	S-DVR9SW /WLXJI	S-DVR9SW /YPWXJI
	4	Packing Case /WLXJI	SHG2590	Not used
	4	Packing Case /YPWXJI	Not used	SHG2591

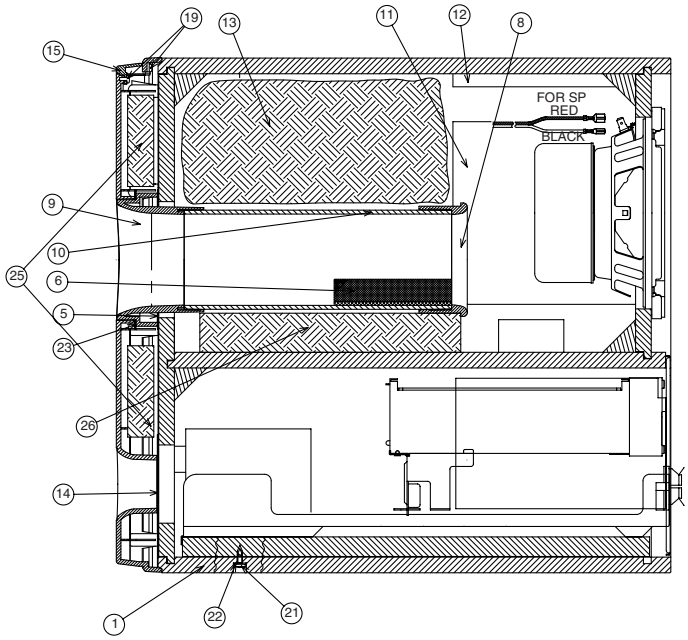
2.2 PRODUCT APPEARANCE SECTION

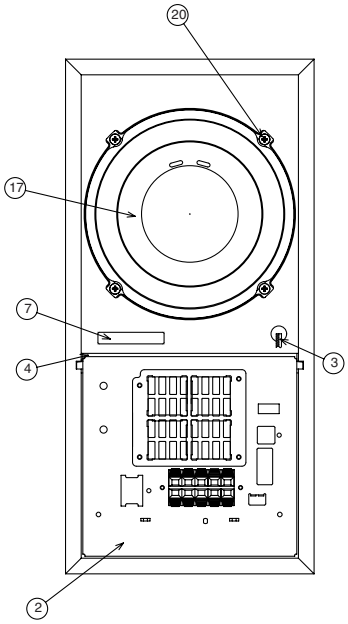


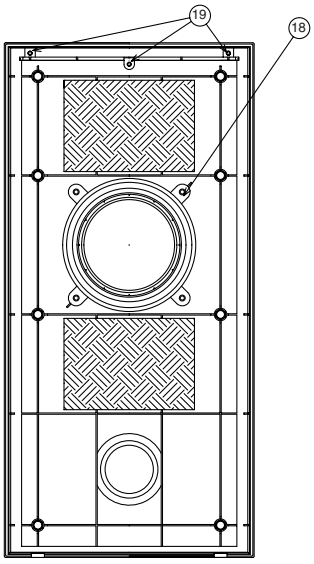


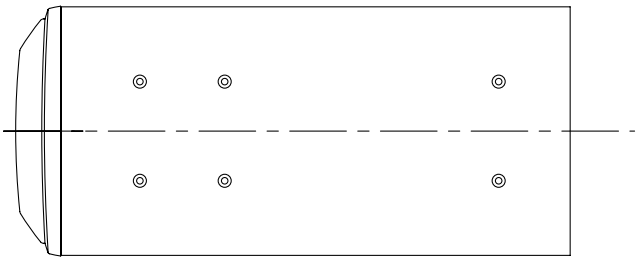
CIRCUIT DIAGRAM











PRODUCT APPEARANCE SECTION parts List

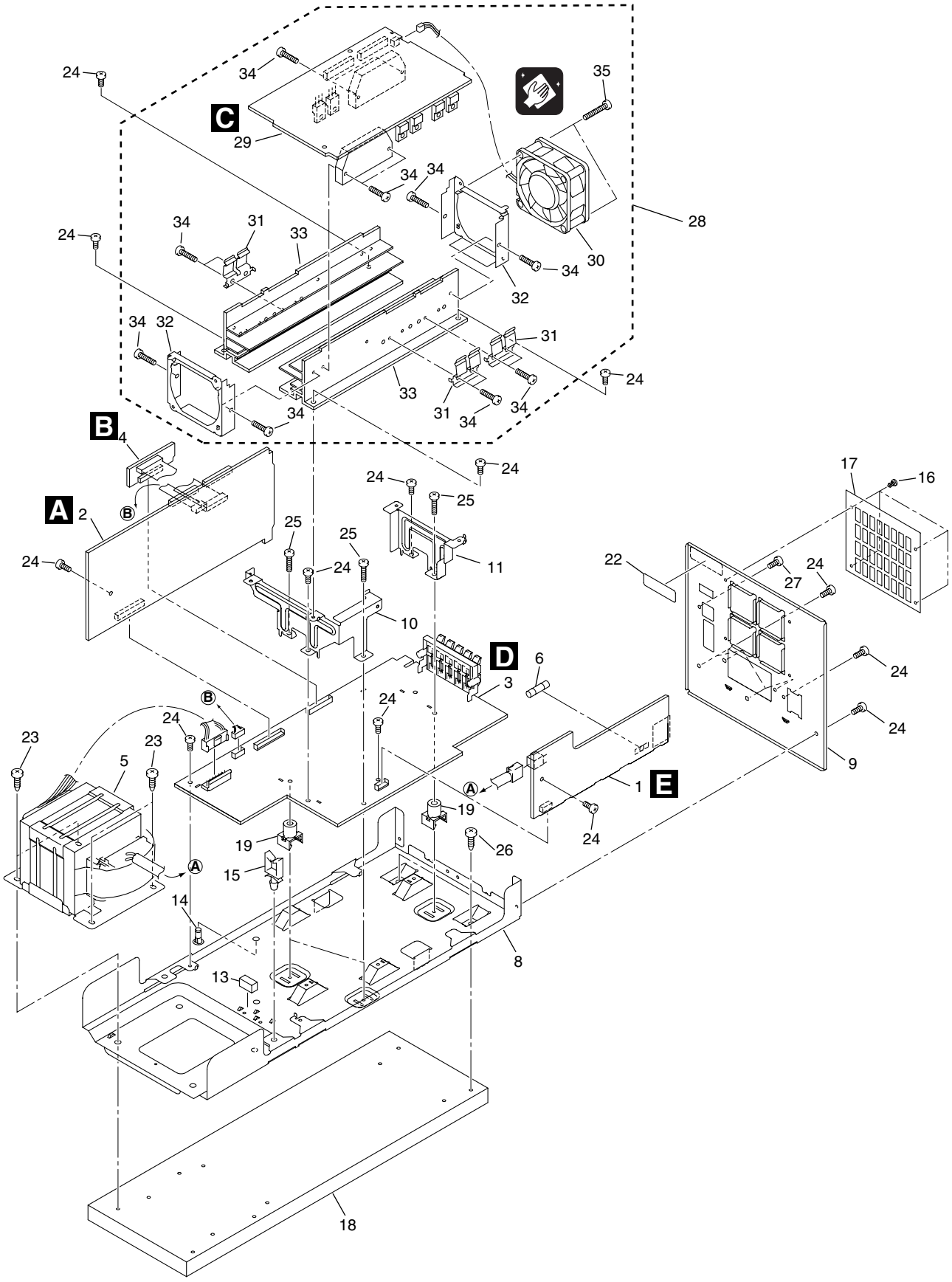
Mark	No.	Description	Part No.
NSP	1	Cabinet	SMM2003
NSP	2	Amp Ass'y	See Contrast table (2)
	3	Connecting Cord	SDF1095
	4	Packing	SEC1540
	5	Packing	SEC1634
	6	Damper	SER1300
NSP	7	Stamped Serial Label	See Contrast table (2)
NSP	8	Duct Ring	SMR1339
NSP	9	Cosmetic Duct	SMR1356
NSP	10	Paper Tube 70	SMR1388
NSP	11	Acoustic Absorbent	SMV2077
NSP	12	Acoustic Absorbent	SMV2078
NSP	13	Acoustic Absorbent	SMV2079
NSP	14	Mesh	SNC1188
NSP	15	Cosmetic Board	SNK2673
NSP	16	Cosmetic Baffle	SNK2672
	17	Speaker	T16LU92-52D
	18	Screw (for Cosmetic Duct)	BPZ40P120FNI
	19	Screw (for Cosmetic Board)	BPZ35P080FNI
	20	Screw (for Speaker)	BYC40P160FNI
	21	Screw (for Amp Ass'y)	BYC40P200FNI
	22	Washer	WA43F090N080
NSP	23	Gasket	SEC1735
	24	• • • • • •	
	25	Acoustic Absorbent	SMT1216
	26	Acoustic Absorbent	SMT1217

(2) CONTRAST TABLE

S-DVR9SW/WLXJI and S-DVR9SW/YPWXJI are constructed the same except for the following:

Mark	No.	Symbol and Description	S-DVR9SW /WLXJI	S-DVR9SW /YPWXJI
NSP	2	AMP Assy /WLXJI	AXX7193	Not used
NSP	2	AMP Assy /YPWXJI	Not used	AXX7194
NSP	7	Stamped Serial Label	SME3546	SME3547

2.3 AMPLIFIER ASSY



AMPLIFIER ASSY parts List

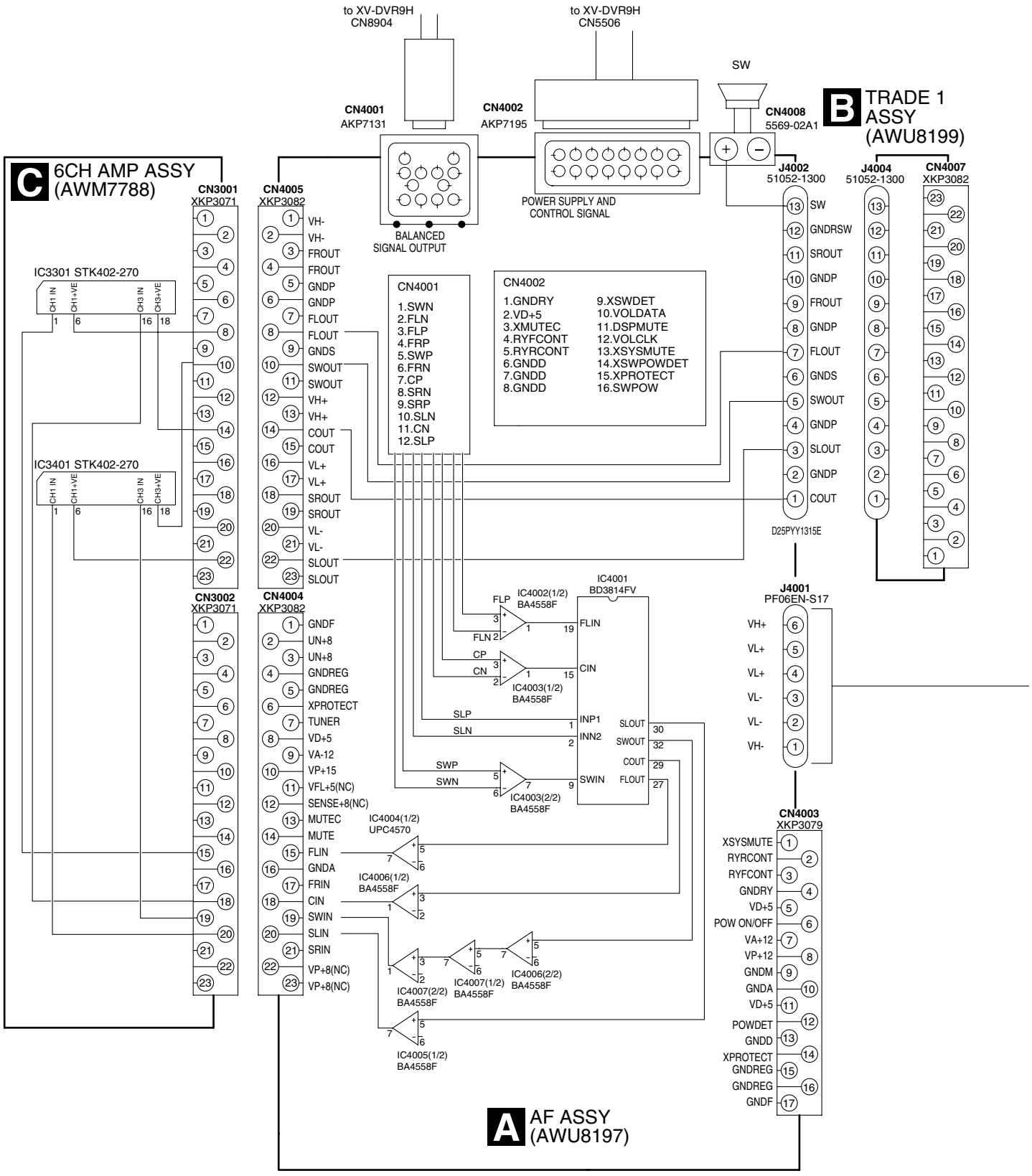
Mark	No.	Description	Part No.
	1	PRIMARY ASSY	AWU8196
	2	AF ASSY	AWU8197
	3	POWER ASSY	AWU8198
	4	TRADE 1 ASSY	AWU8199
⚠	5	POWER TRANSFORMER T1	ATS7384
⚠	6	Fuse (FU1 : T2.5A)	REK1026
	7	• • • • • •	
NSP	8	Chassis	ANA7109
	9	Rear Panel	See Contrast table (2)
	10	Hs Holder F	ANG7439
	11	Hs Holder R	ANG7440
	12	• • • • • •	
	13	Cushion	AEB7319
	14	Card Spacer	AEC7133
	15	Wire Saddel	AEC7297
	16	Nylon Rivet	AEC7318
	17	Fan Cover SW	AEC7523
	18	Wood Base	AMM7008
	19	PCB Mould	AMR2533
	20	• • • • • •	
	21	• • • • • •	
NSP	22	Serial Paper	RRW-168
	23	Screw	ABA7116
	24	Screw	BBZ30P080FTC
	25	Screw	BBZ30P200FTC
	26	Screw	BYC40P140FCC
	27	Screw	PSC30P080FNI
NSP	28	AMP MODULE 6CH	AXQ7256
	29	6CH AMP ASSY	AWM7788
	30	DC Fan Motor	AXM7025
	31	FET Bracket	ANG7418
	32	Fan Plate	ANG7462
	33	Heat Sink	ANH7166
	34	Screw	BBZ30P140FTC
	35	Screw	BBZ30P300FTC

(2) CONTRAST TABLE

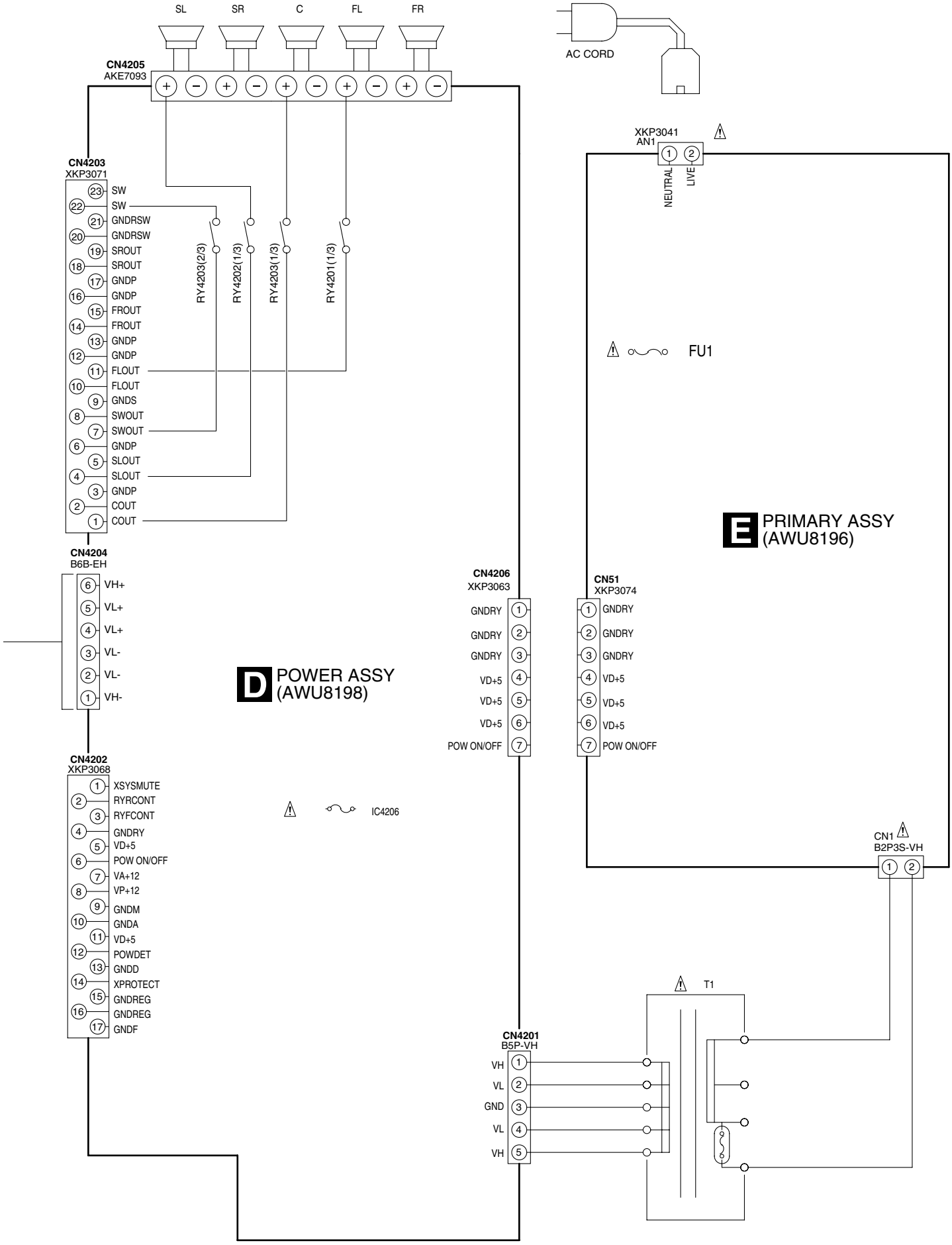
S-DVR9SW/WLXJI and S-DVR9SW/YPWXJI are constructed the same except for the following:

Mark	No.	Symbol and Description	S-DVR9SW /WLXJI	S-DVR9SW /YPWXJI
	9	Rear Panel /WLXJI	ANC8306	Not used
	9	Rear Panel /YPWXJI	Not used	ANC8308

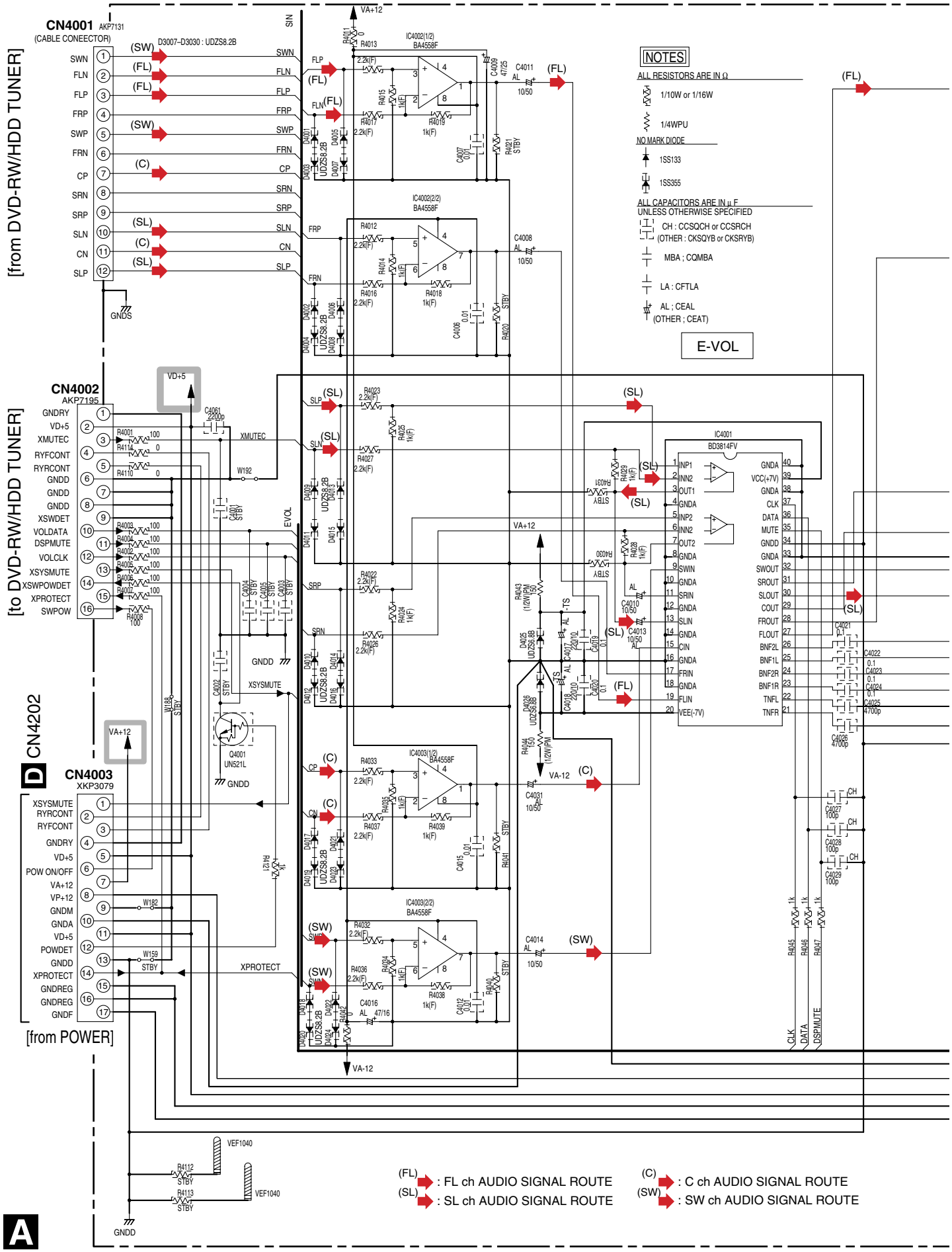
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM
3.1 BLOCK DIAGRAM AND OVERALL CONNECTION DIAGRAM

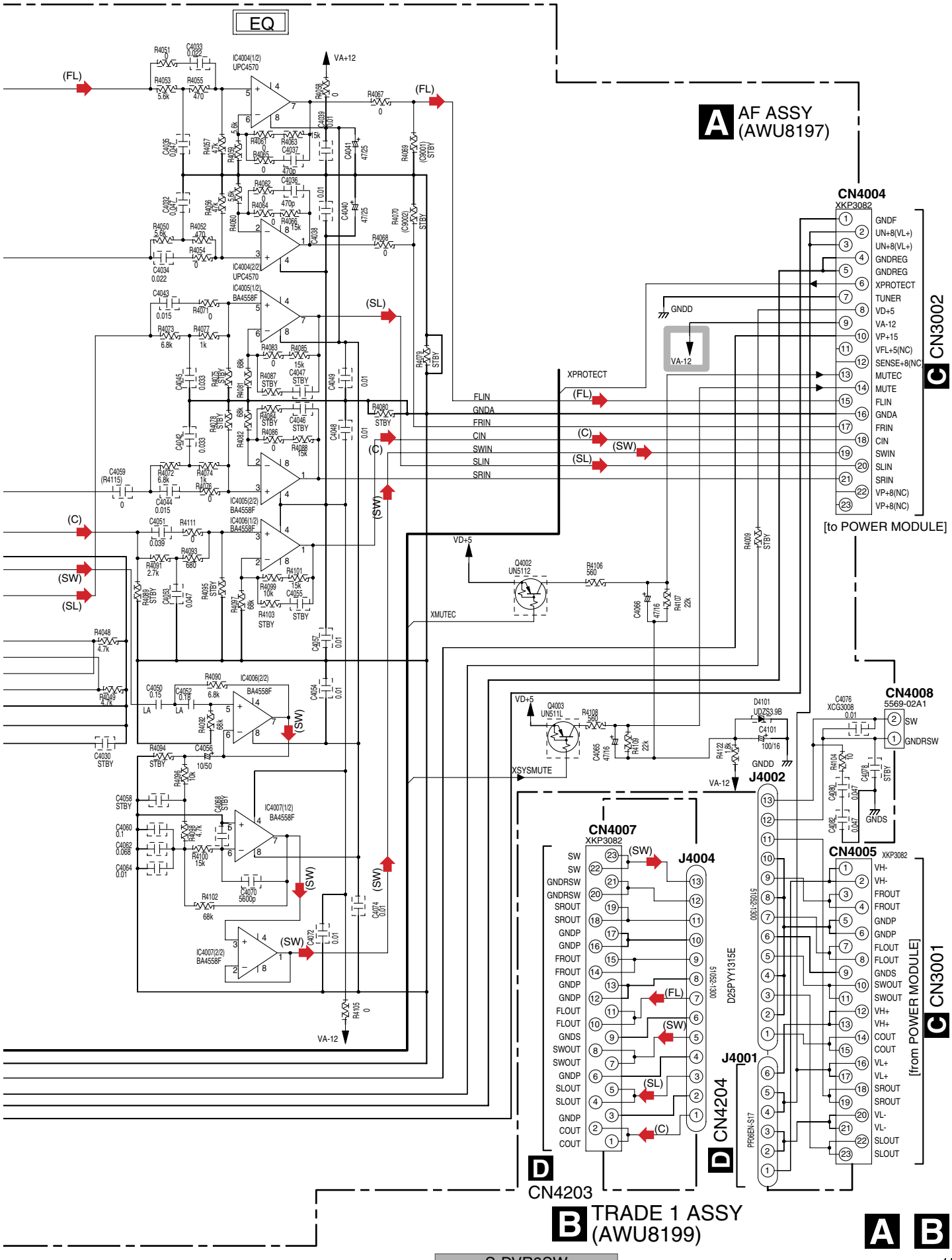


- When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- : The power supply is shown with the marked box.

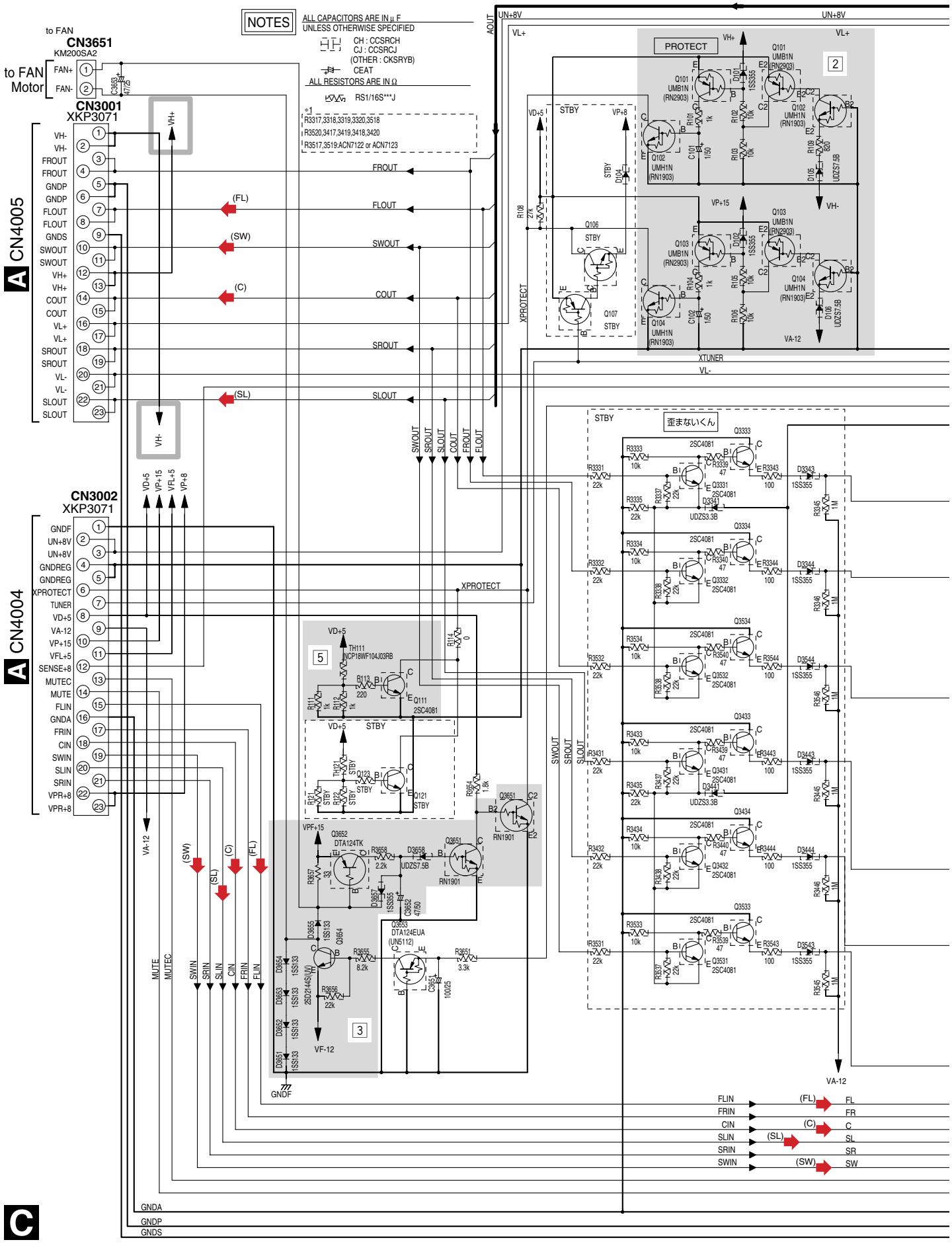

SL
SR
C
FL
FR
AC CORD
CN4205
AKE7093
CN4203
XKP3071
SW
SW
GNDRSW
GNDRSW
SROUT
SROUT
GNDP
GNDP
FROUT
FROUT
GNDP
GNDP
FLOUT
FLOUT
GNDS
SWOUT
SWOUT
GNDP
SLOUT
SLOUT
GNDP
COUT
COUT
RY4203(2/3)
RY4202(1/3)
RY4203(1/3)
RY4201(1/3)
XKP3041
AN1
NEUTRAL
LIVE
FU1
E PRIMARY ASSY
(AWU8196)
CN4204
B6B-EH
VH+
VL+
VL+
VL-
VL-
VH-
D POWER ASSY
(AWU8198)
CN4206
XKP3063
GNDRY
GNDRY
GNDRY
VD+5
VD+5
VD+5
POW ON/OFF
CN51
XKP3074
GNDRY
GNDRY
GNDRY
VD+5
VD+5
VD+5
POW ON/OFF
CN4202
XKP3068
XSYSMUTE
RYRCONT
RYFCONT
GNDRY
VD+5
POW ON/OFF
VA+12
VP+12
GNDM
GNDA
VD+5
POWDET
GNDD
XPROTECT
GNDREG
GNDREG
GNDF
IC4206
CN1
B2P3S-VH
T1
CN4201
B5P-VH
VH
VL
GND
VL
VH

3.2 AF and TRADE 1 ASSY

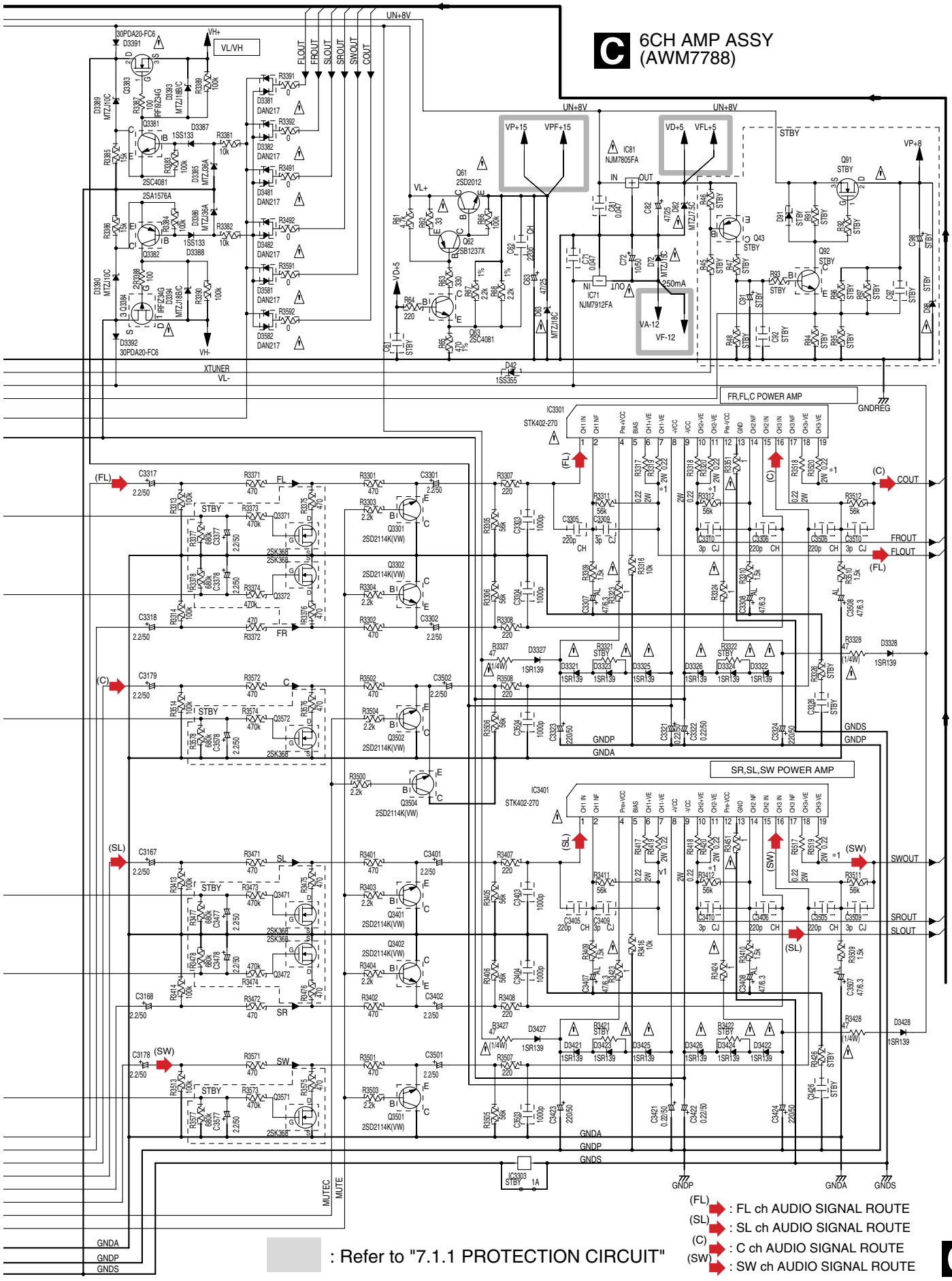



EQ
A AF ASSY (AWU8197)
B TRADE 1 ASSY (AWU8199)
D CN4203
CN4004 XKP3082
[to POWER MODULE]
C CN3002
CN4008 5569-02A1
CN4005 XKP3082
[from POWER MODULE]
C CN3001
CN4007 XKP3082
J4004
J4002
J4001
D CN4204
D25PYY1315E
PR06EN-S17
IC4004(1/2) UPC4570
IC4004(2/2) UPC4570
IC4005(1/2) BA4558F
IC4005(2/2) BA4558F
IC4006(1/2) BA4558F
IC4006(2/2) BA4558F
IC4007(1/2) BA4558F
IC4007(2/2) BA4558F
Q4002 UN5112
Q4003 UN511L
D4101 UDZS3.9B
VA+12
VA-12
VD+5
GNDD
GNDS
FLIN
GNDA
FRIN
CIN
SWIN
SLIN
SRIN
XPROTECT
XMUTEC
XSYSMUTE
(FL)
(SL)
(C)
(SW)

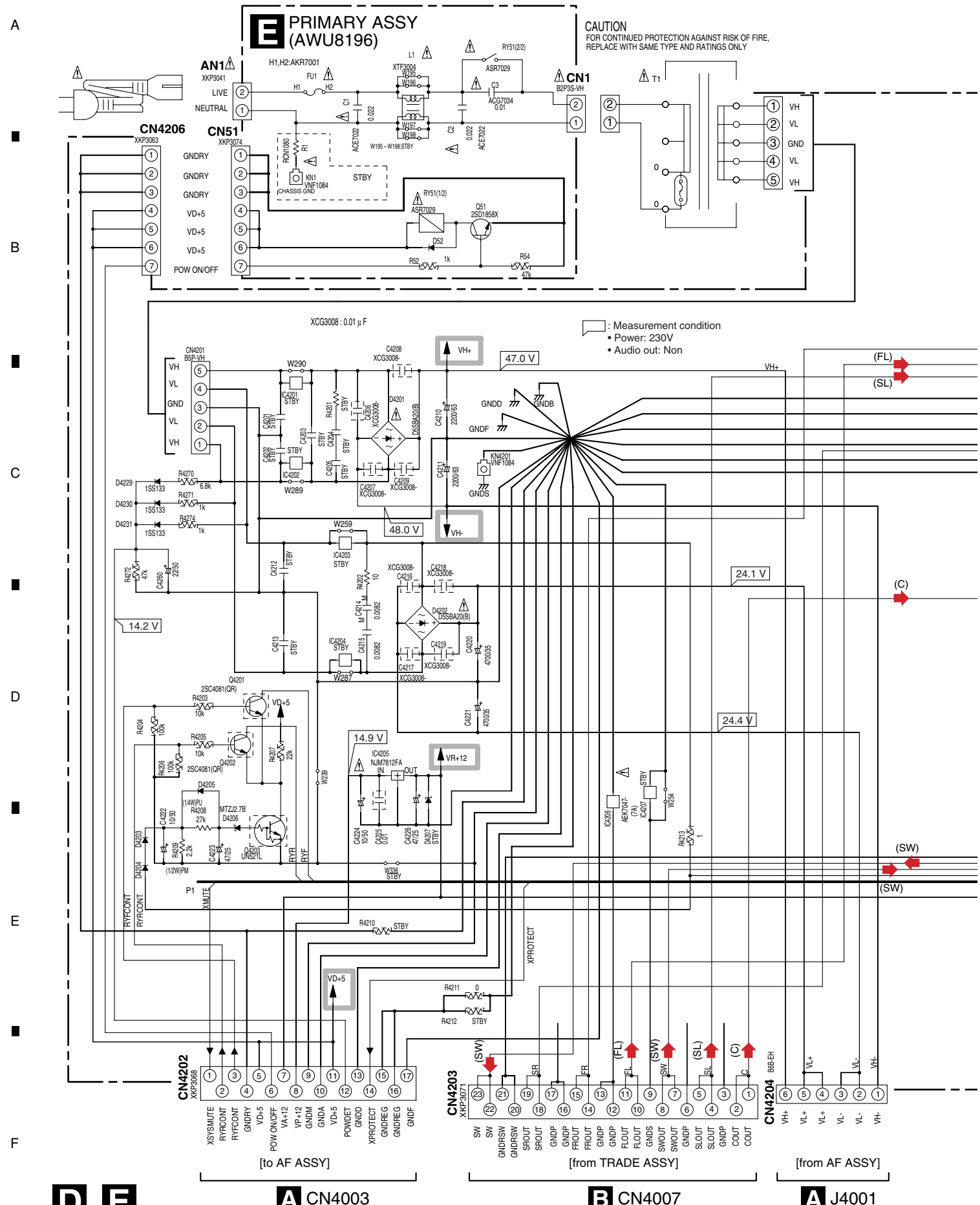
3.3 6CH AMP ASSY



C 6CH AMP ASSY (AWM7788)

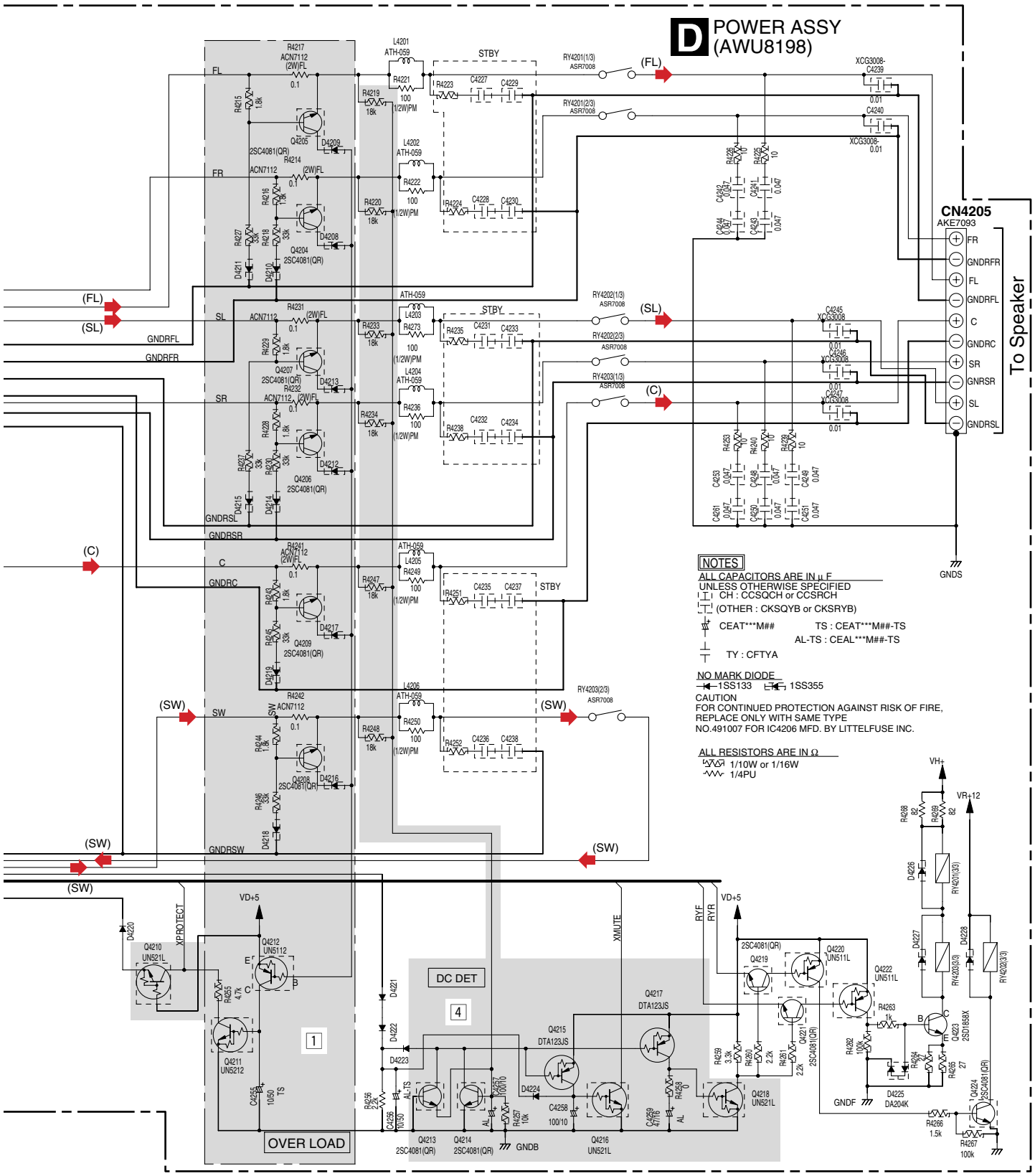


3.4 POWER and PRIMARY ASSY



	T1	FU1
/WLXJI /YPWXJI /WYVXJI	ATS7384	REK1026 (T2.5AL250V)
/JJXJI	ATS7385	REK1069 (6.3A/125V)

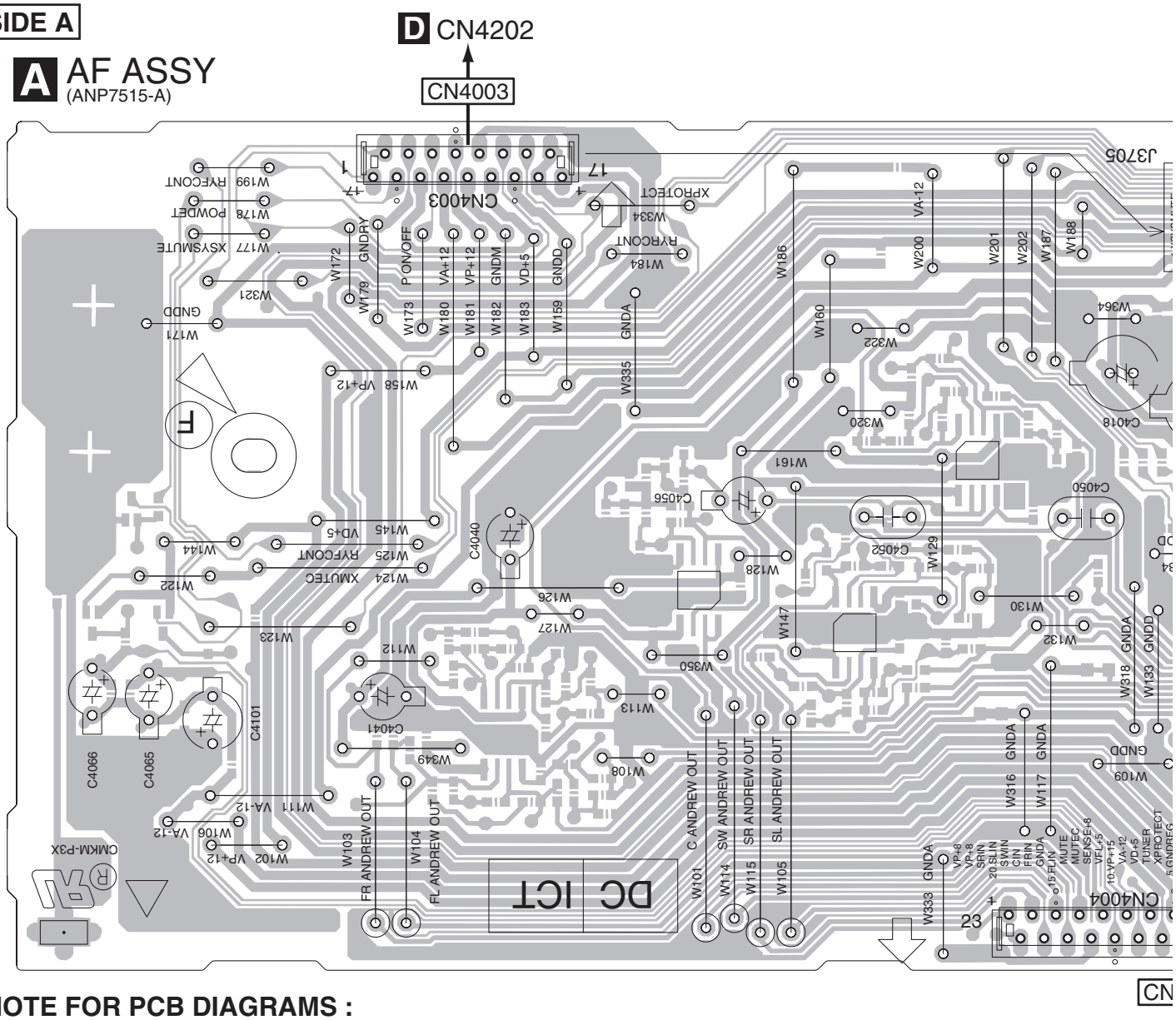
(FL) : FL ch AUDIO SIGNAL ROUTE
(SL) : SL ch AUDIO SIGNAL ROUTE
(C) : C ch AUDIO SIGNAL ROUTE
(SW) : SW ch AUDIO SIGNAL ROUTE



4. PCB CONNECTION DIAGRAM
4.1 AF and TRADE 1 ASSY

SIDE A

A AF ASSY
(ANP7515-A)

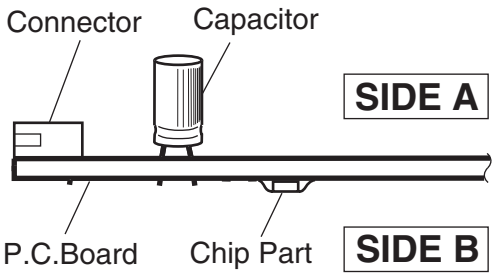


NOTE FOR PCB DIAGRAMS :

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
B C E	B C E B C E	Transistor
B C E	B C E B C E	Transistor with resistor
D G S	D G S D G S	Field effect transistor
		Resistor array
		3-terminal regulator

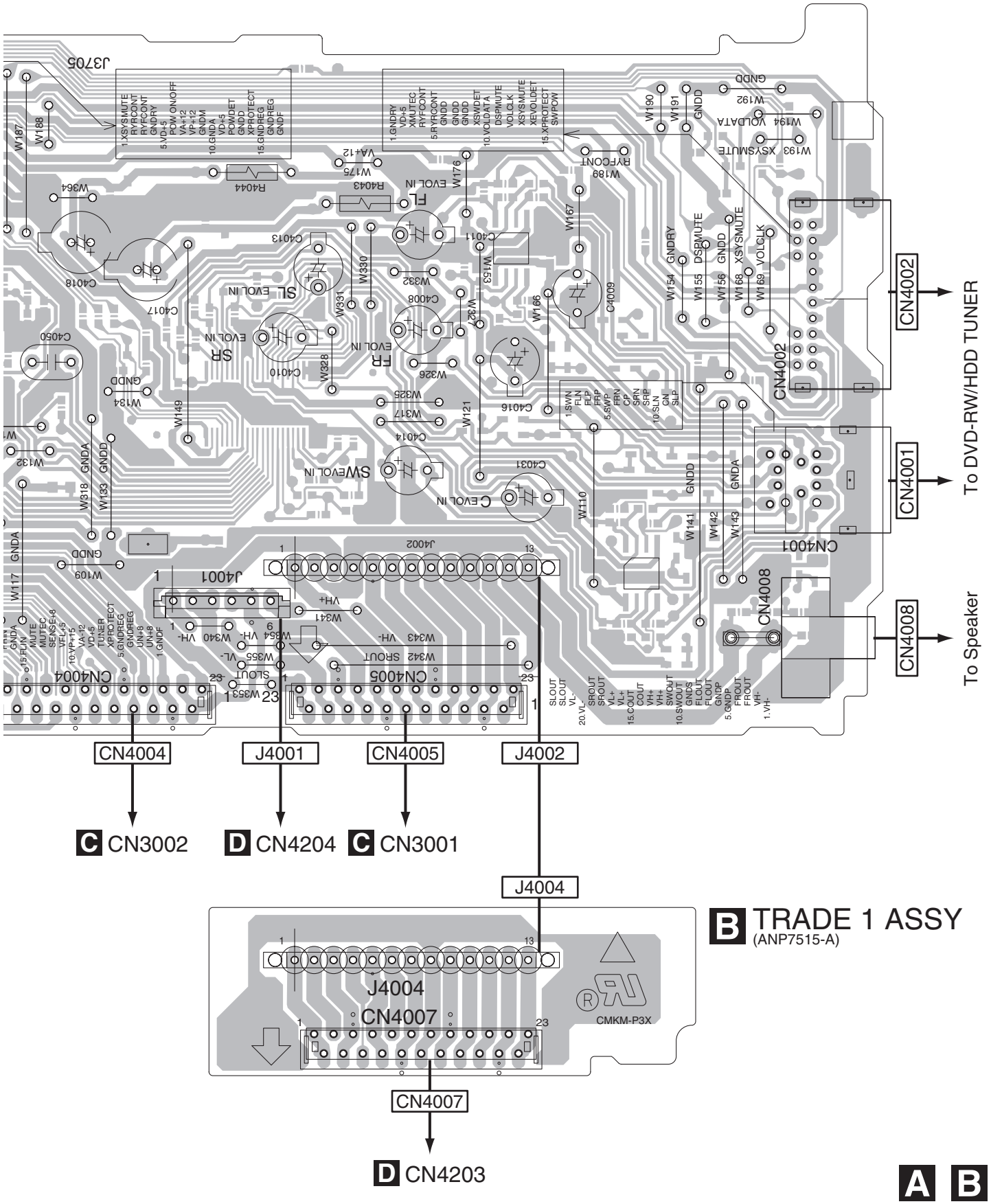
3. The parts mounted on this PCB include all necessary parts for several destinations.
   For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.



C C

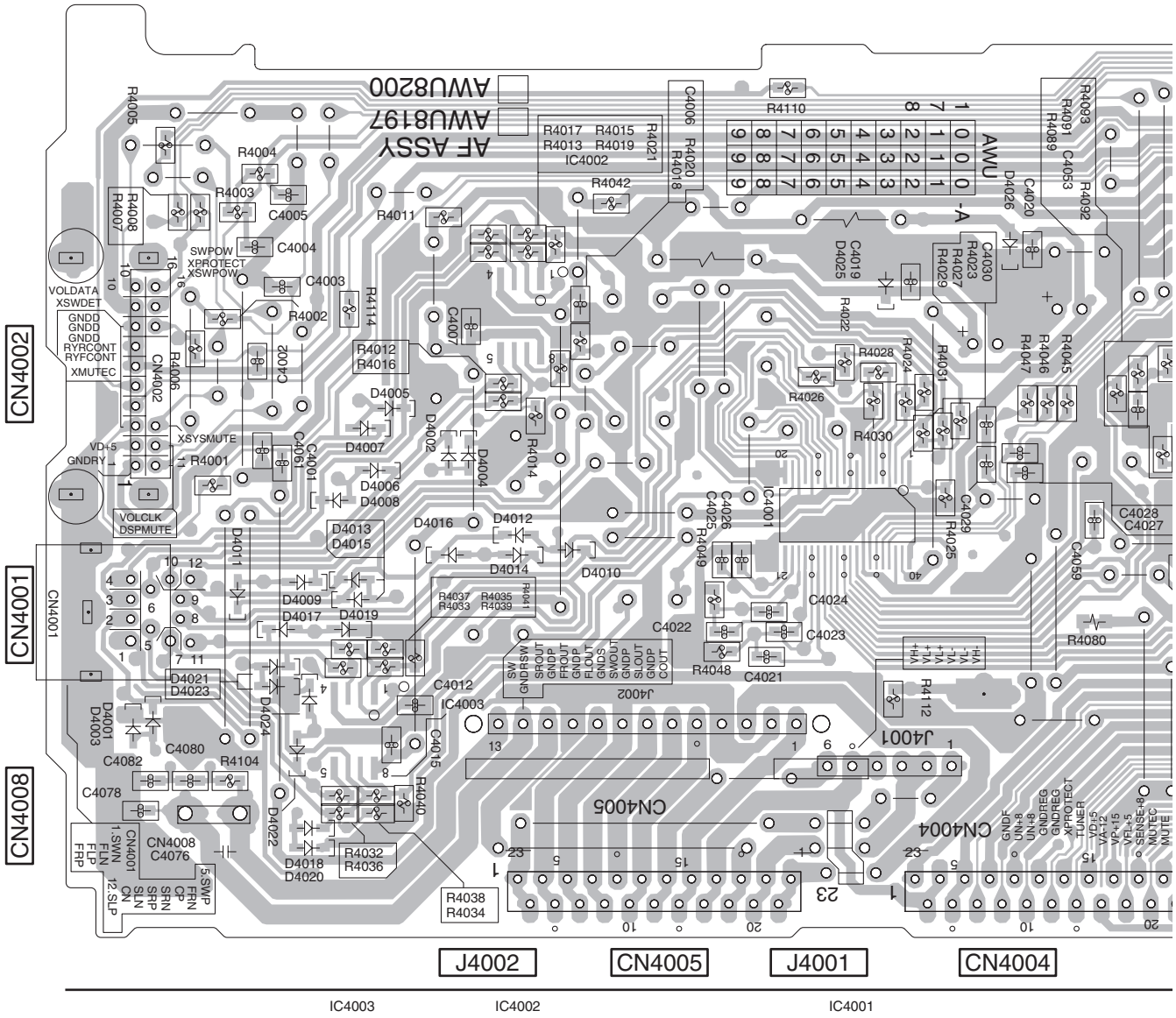
A

SIDE A

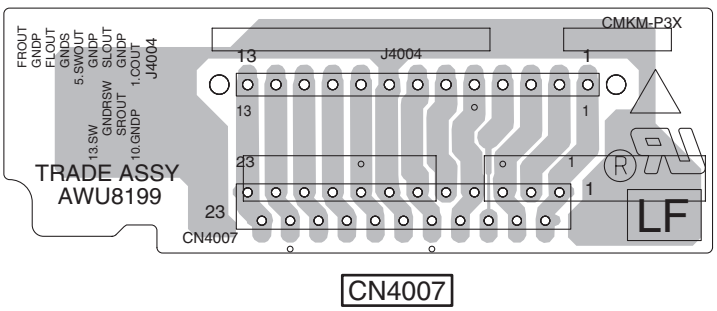

J3705
CN4002
CN4001
CN4008
To DVD-RW/HDD TUNER
To Speaker
CN4004
J4001
CN4005
J4002
C CN3002
D CN4204
C CN3001
J4004
B TRADE 1 ASSY
(ANP7515-A)
J4004
CN4007
CMKM-P3X
CN4007
D CN4203

SIDE B

A AF ASSY
(ANP7515-A)



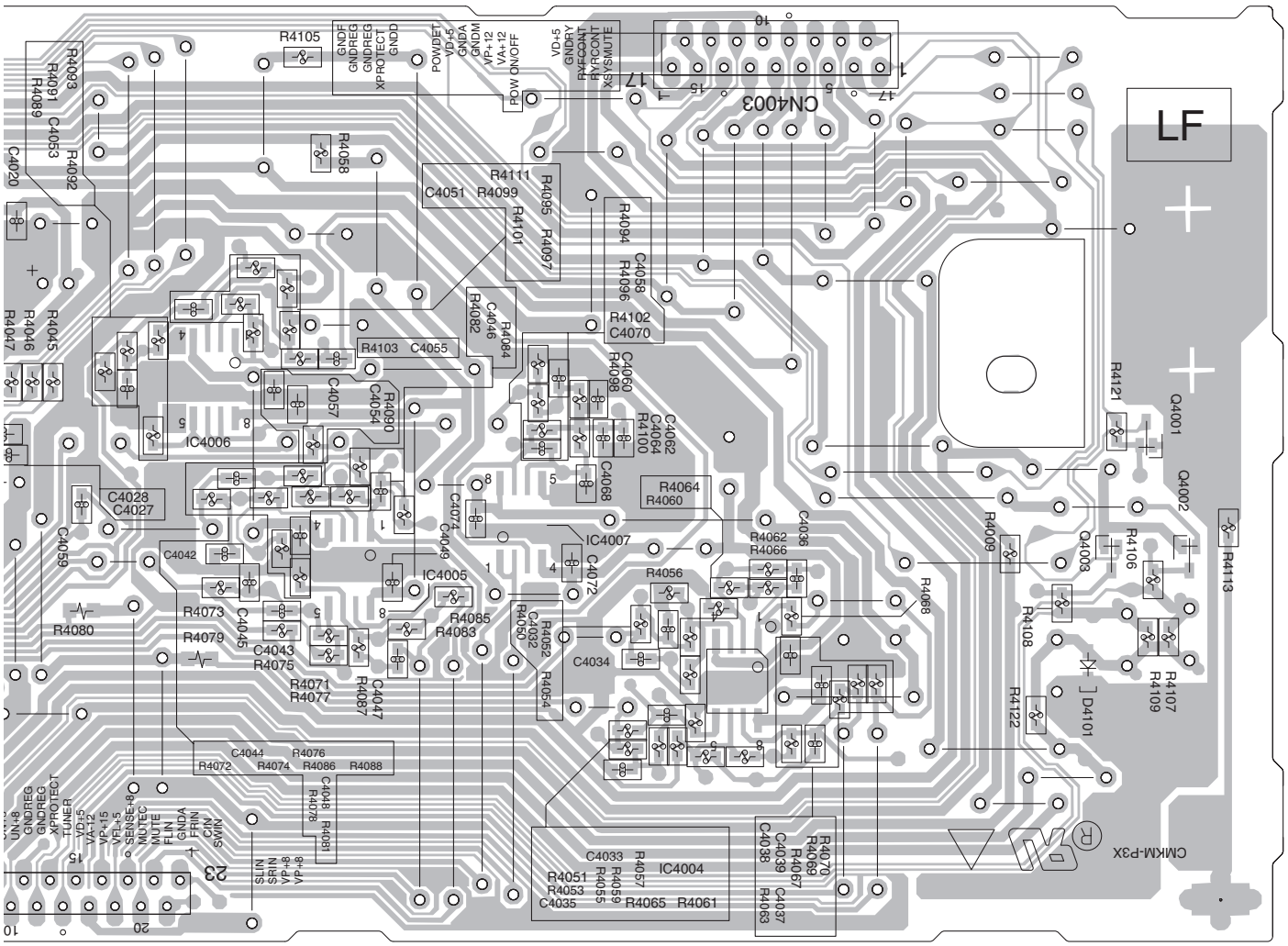
B TRADE 1 ASSY
(ANP7515-A)



A B

SIDE B

CN4003

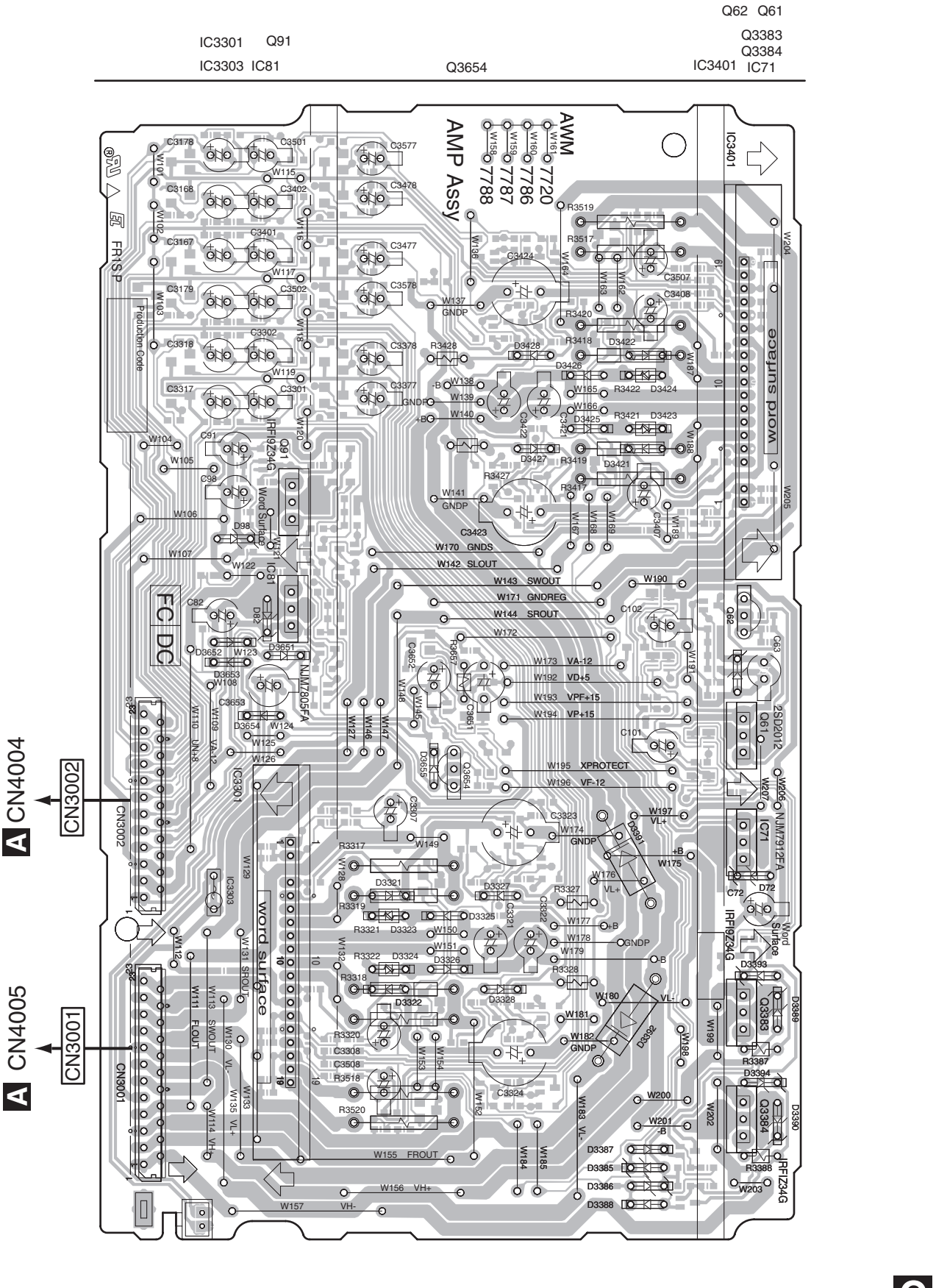


4.2 6CH AMP ASSY

SIDE A

C 6CH AMP ASSY
(ANP7461-A)

SIDE A

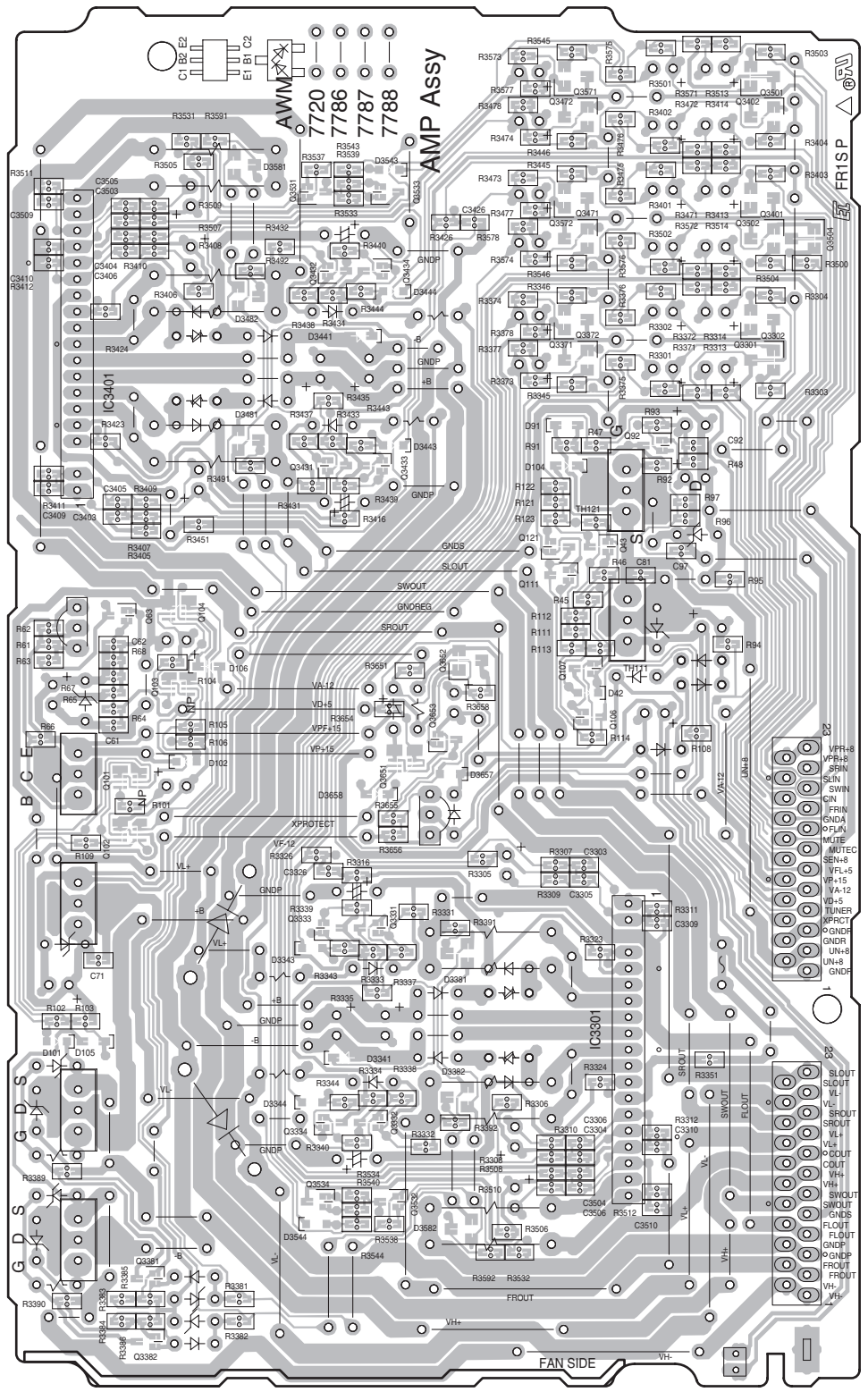


SIDE B

C 6CH AMP ASSY
(ANP7461-A)

SIDE B

Q101 Q63 Q3333 Q3331 Q3533 Q3572 Q3402
Q102 Q3381 Q3334 Q3332 Q3653 Q121 Q3471 Q3371 Q3372 Q92 Q3502 Q3401
Q103 Q3534 Q3532
Q3382 Q104 Q3432 Q3651 Q3652 Q111 Q107 Q106 Q43 Q3301 Q3302 Q3504



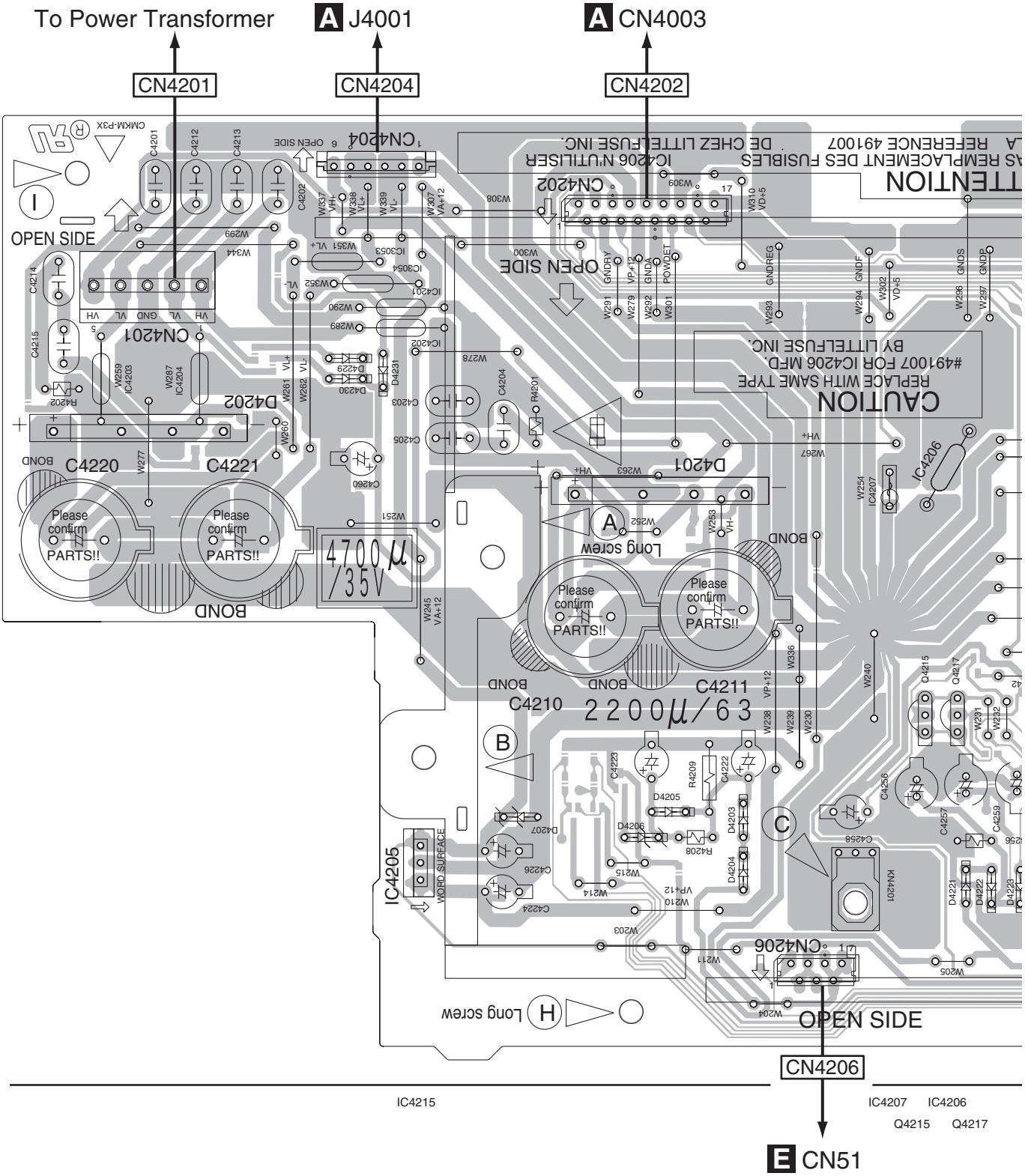
C

C

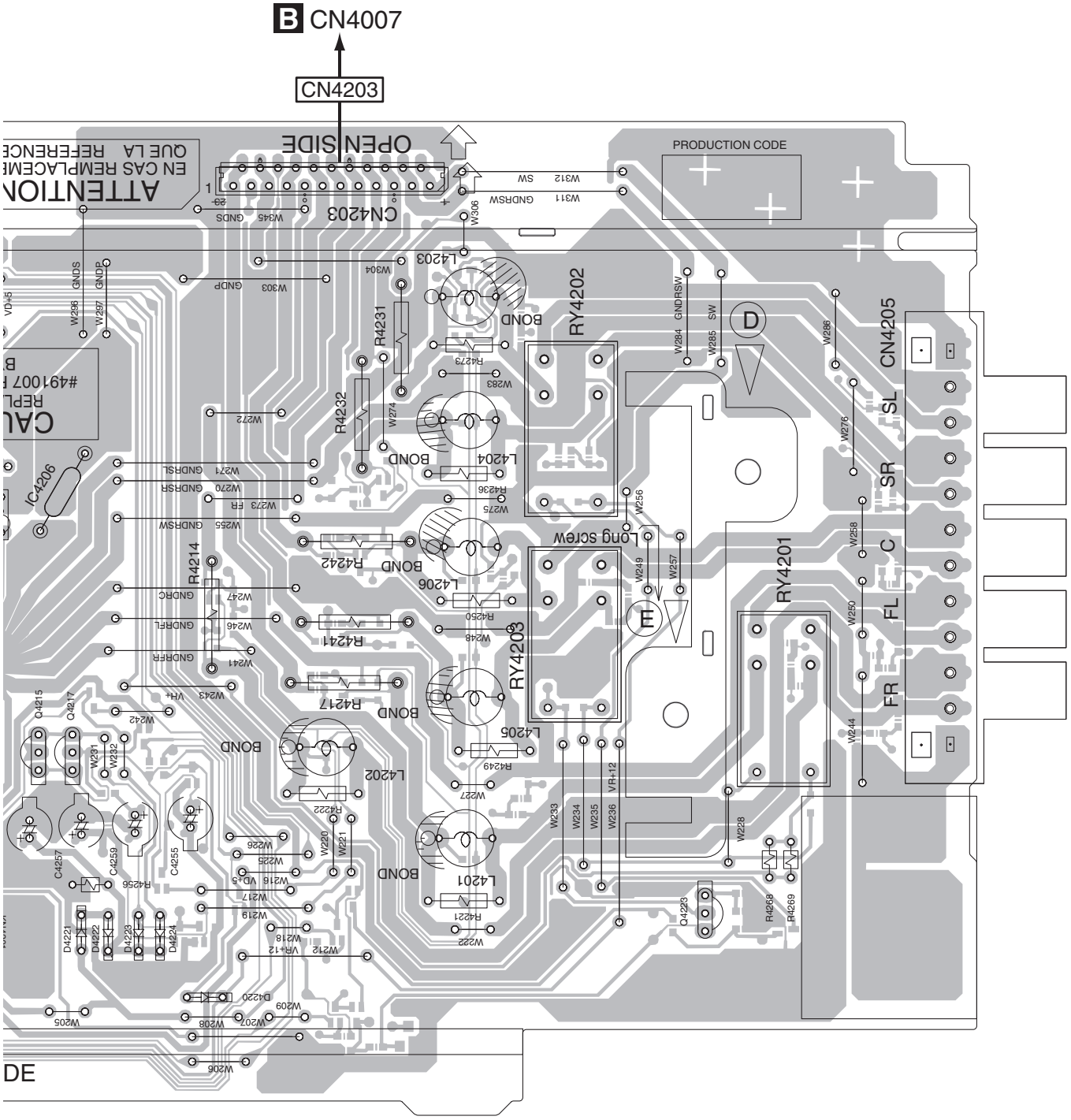
4.3 POWER ASSY

SIDE A

D POWER ASSY
(ANP7515-A)



SIDE A



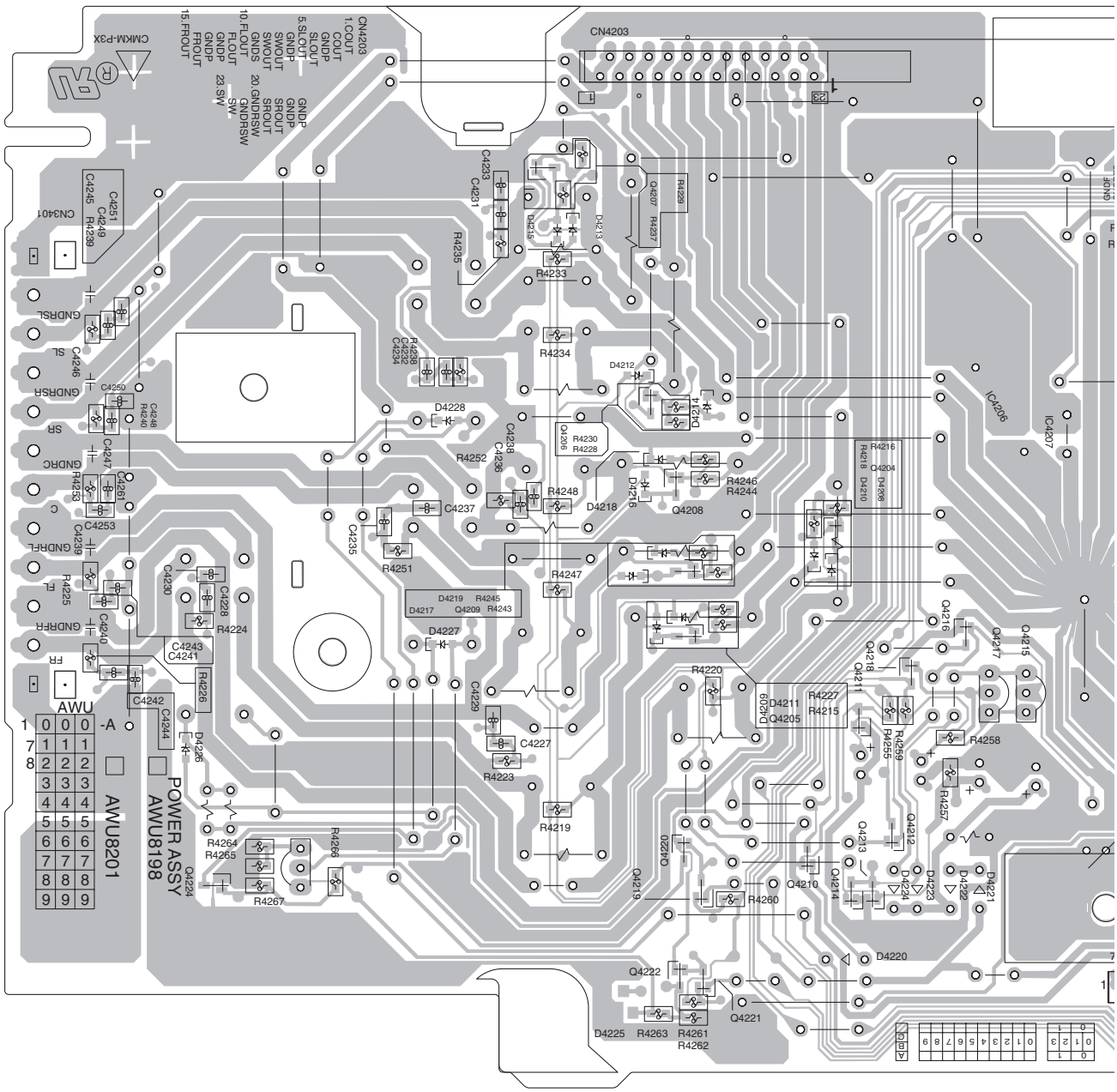
:07 IC4206 Q4223

Q4215 Q4217

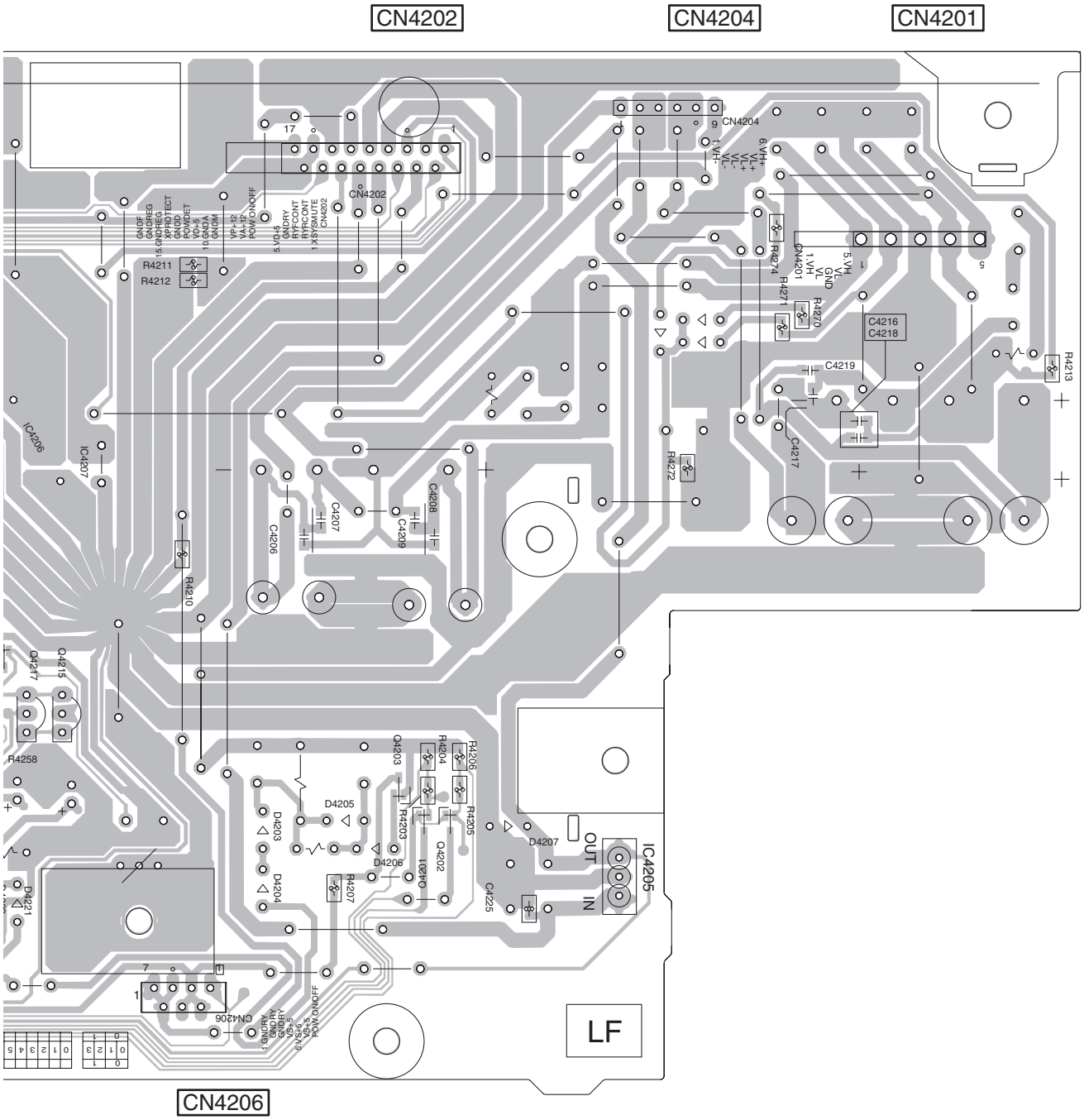
SIDE B

D POWER ASSY
(ANP7515-A)

CN4203



SIDE B



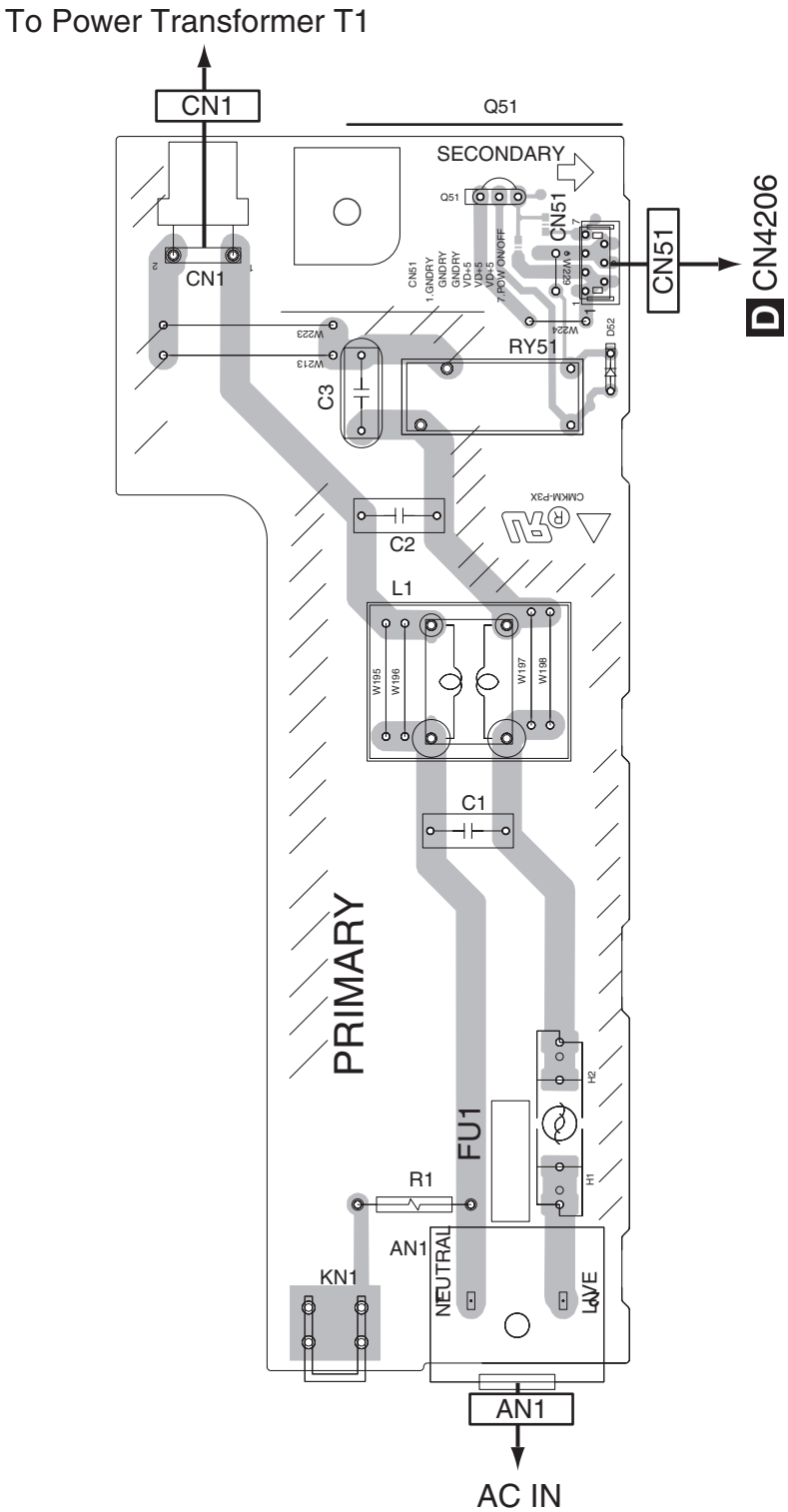
16 Q4215 Q4203 IC4205
Q4217 Q4201 Q4202

4.4 PRIMARY ASSY

SIDE A

SIDE A

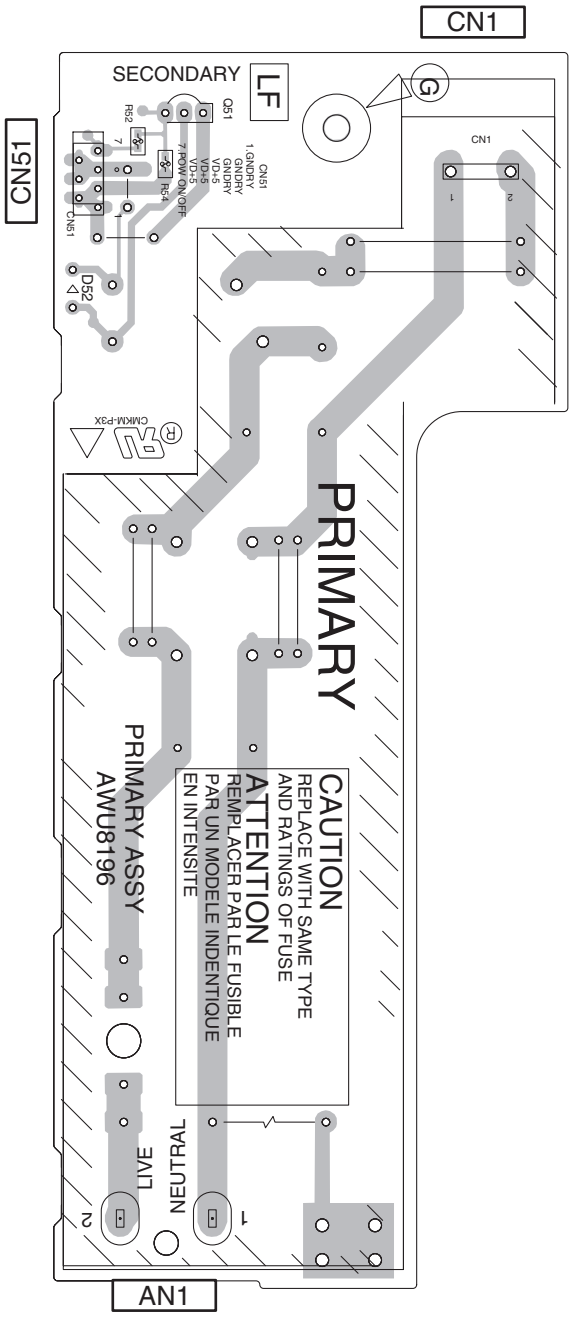
E PRIMARY ASSY
(ANP7515-A)



SIDE B

SIDE B

E PRIMARY ASSY
(ANP7515-A)



5. PCB PARTS LIST

NOTES: ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
● *When ordering resistors, first convert resistance values into code form as shown in the following examples.*
Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω	→ *56 x 10¹* →	*561*	····· *RD1/4PU 5 6 1 J*
47k Ω	→ *47 x 10³* →	*473*	····· *RD1/4PU 4 7 3 J*
0.5 Ω	→ *R50*		····· *RN2H R 5 0 K*
1 Ω	→ *1R0*		····· *RS1P 1 R 0 K*

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω	→ *562 x 10¹* →	*5621*	····· *RN1/4PC 5 6 2 1 F*

LIST OF ASSEMBLIES

Mark	No.	Description	Part No.
NSP	1	DVD AMP ASSY	AWM7912
	2	PRIMARY ASSY	AWU8196
	2	AF ASSY	AWU8197
	2	POWER ASSY	AWU8198
	2	TRADE 1 ASSY	AWU8199
NSP	1	AMP MODULE 6CH	AXQ7256
	2	6CH AMP ASSY	AWM7788

A AF ASSY

SEMICONDUCTORS

Mark	No.	Description	Part No.
		IC4002, IC4003, IC4005-IC4007	BA4558F-HT
		IC4001	BD3814FV
		IC4004	UPC4570G2
		Q4002	UN5112
		Q4003	UN511L
		Q4001	UN521L
		D4101	UDZS3R9(B)
		D4025, D4026	UDZS6R8(B)
		D4001-D4024	UDZS8R2(B)

CAPACITORS

Mark	No.	Description	Part No.
		C4027-C4029	CCSRCH101J50
		C4036, C4037	CCSRCH471J50
		C4008, C4010, C4011, C4013, C4014	CEAL100M50
		C4031	CEAL100M50
		C4017, C4018	CEAL221M10
		C4016	CEAL470M16
		C4056	CEAT100M50
		C4101	CEAT101M16
		C4065, C4066	CEAT470M16
		C4009, C4040, C4041	CEAT470M25
		C4050	CFTLA154J50
		C4052	CFTLA184J50
		C4006, C4007, C4012, C4015	CKSRYB103K50
		C4038, C4039, C4048, C4049, C4054	CKSRYB103K50
		C4057, C4064, C4072, C4074	CKSRYB103K50
		C4019-C4024, C4060	CKSRYB104K16
		C4043, C4044	CKSRYB153K25
		C4061	CKSRYB222K50
		C4033, C4034	CKSRYB223K25
		C4042, C4045	CKSRYB333K25
		C4051	CKSRYB393K16
		C4025, C4026	CKSRYB472K50
		C4032, C4035, C4053, C4080, C4082	CKSRYB473K50
		C4070	CKSRYB562K50
		C4062	CKSRYB683K16
		C4076 (10p/100V)	XCG3008

RESISTORS

Mark	No.	Description	Part No.
		R4043, R4044	RD1/2PM151J
		R4014, R4015, R4018, R4019	RS1/16S1001F
		R4024, R4025, R4028, R4029	RS1/16S1001F
		R4034, R4035, R4038, R4039	RS1/16S1001F
		R4012, R4013, R4016, R4017	RS1/16S2201F
		R4022, R4023, R4026, R4027	RS1/16S2201F
		R4032, R4033, R4036, R4037	RS1/16S2201F
		Other Resistors	RS1/16S###J

OTHERS

Mark	No.	Description	Part No.
	4002	CABLE HOLDER(13P)	51052-1300
	CN4008	2P CONNECTOR	5569-02A1
	CN4001	12P CONNECTOR	AKP7131
	CN4002	16P SOCKET	AKP7195
	J4002	JUMPER WIRE	D25PYY1315E
	J4001	CONNECTOR ASSY	PF06EN-S17
		PCB BINDER	VEF1040
	CN4003	17P SOCKET	XKP3079
	CN4004, CN4005	23P SOCKET	XKP3082

B TRADE 1 ASSY

OTHERS

Mark	No.	Description	Part No.
	4004	CABLE HOLDER(13P)	51052-1300
	CN4007	23P SOCKET	XKP3082

C 6CH AMP ASSY

SEMICONDUCTORS

Mark	No.	Description	Part No.
⚠		IC81	NJM7805FA
⚠		IC71	NJM7912FA
⚠		IC3301, IC3401	STK402-270
		Q3382	2SA1576A
		Q62	2SB1237X
		Q111, Q3381, Q63	2SC4081
⚠		Q61	2SD2012
		Q3301, Q3302, Q3401, Q3402	2SD2114K
		Q3501, Q3502, Q3504	2SD2114K

Mark	No.	Description	Part No.
	Q3654		2SD2144S
	Q3653		DTA124EUA
	Q3652		DTA124TK
⚠	Q3383		IRFI9Z34G
⚠	Q3384		IRFIZ34G
	Q3651		RN1901
	Q101, Q103		UMB1N
	Q102, Q104		UMH1N
⚠	D3321-D3326		1SR139-400
	D3327, D3328		1SR139-400
⚠	D3421-D3426		1SR139-400
	D3427, D3428		1SR139-400
	D3387, D3388, D3651-D3655		1SS133
	D101, D102, D3657, D42		1SS355
⚠	D3391, D3392		30PDA20-FC6
⚠	D3381, D3382, D3481, D3482		DAN217
⚠	D3581, D3582		DAN217
	D3389, D3390		MTZJ10C
⚠	D72		MTZJ15C
	D3393, D3394		MTZJ18B/C
⚠	D63		MTZJ18C
	D3385, D3386		MTZJ36A
⚠	D82		MTZJ7.5C
	D105, D106, D3658		UDZS7R5(B)
	TH111		NCP18WF104J03RB

CAPACITORS

	C3305, C3306, C3405, C3406	CCSRCH221J50
	C3505, C3506, C62	CCSRCH221J50
	C3309, C3310, C3409, C3410	CCSRCJ3R0C50
	C3509, C3510	CCSRCJ3R0C50
	C3307, C3308, C3407, C3408	CEAL470M6R3
	C3507, C3508	CEAL470M6R3
	C72	CEAT100M50
	C3651	CEAT101M25
	C101, C102	CEAT1R0M50
	C3323, C3324, C3423, C3424	CEAT221M50
	C3167, C3168, C3178, C3179	CEAT2R2M50
	C3301, C3302, C3317, C3318	CEAT2R2M50
	C3401, C3402, C3501, C3502	CEAT2R2M50
	C3652, C63, C82	CEAT470M25
	C3653	CEAT470M35
	C3321, C3322, C3421, C3422	CEATR22M50
	C3303, C3304, C3403, C3404	CKSRYB102K50
	C3503, C3504	CKSRYB102K50
	C71, C81	CKSRYB473K50

RESISTORS

	R3317-R3320, R3417-R3420	ACN7122
	R3517-R3520 (0.22/2W)	ACN7122
⚠	R3327, R3328, R3427, R3428	RD1/4MUF470J
	R3387, R3388	RD1/4PU101J
	R3657	RD1/4PU330J
⚠	R3323, R3324, R3351, R3423, R3424	RS1/16S1R0J
⚠	R3451	RS1/16S1R0J
	R67, R68	RS1/16S2201F
⚠	R62	RS1/16S330J
	R65	RS1/16S4700F
	Other Resistors	RS1/16S###J

OTHERS

Mark	No.	Description	Part No.
	CN3651	PLUG(2P)	KM200SA2
	CN3001, CN3002	23P PLUG	XKP3071

D POWER ASSY

SEMICONDUCTORS

⚠	IC4206	PROTECTOR(7A)	AEK7047
⚠	IC4205		NJM7812FA
	Q4201, Q4202, Q4204-Q4209		2SC4081
	Q4213, Q4214, Q4219, Q4221, Q4224		2SC4081
	Q4223		2SD1858X
	Q4215, Q4217		DTA123JS
	Q4212		UN5112
	Q4220, Q4222		UN511L
	Q4211		UN5212
	Q4203, Q4210, Q4216, Q4218		UN521L
	D4203-D4205, D4220-D4224		1SS133
	D4229-D4231		1SS133
	D4208-D4219, D4226-D4228		1SS355
⚠	D4201, D4202		D5SBA20(B)
	D4225		DA204K
	D4206		MTZJ2.7B

COILS AND FILTERS

	L4201-L4206	COIL(5.3u)	ATH-059

CAPACITORS

	C4255, C4256	CEAL100M50
	C4257	CEAL101M10
	C4259	CEAL470M16
	C4222, C4224	CEAT100M50
	C4258	CEAT101M10
	C4260	CEAT220M25
	C4210, C4211	CEAT222M63
	C4223, C4226	CEAT470M25
	C4220, C4221	CEAT472M35
	C4225	CKSRYB103K50
	C4241-C4244, C4248-C4251, C4253	CKSRYB473K50
	C4261	CKSRYB473K50
	C4214, C4215	CQMBA822J50
	C4206-C4209, C4216-C4219	XCG3008
	C4239,C4240,C4245-C4247(10p/100V)	XCG3008

RESISTORS

	R4214, R4217, R4231, R4232	ACN7112
	R4241, R4242 (0.1/2W)	ACN7112
	R4221, R4222, R4236, R4249, R4250	RD1/2PM101J
	R4273	RD1/2PM101J
	R4209	RD1/2PM222J
	R4202	RD1/4PU100J
	R4256	RD1/4PU222J
	R4208	RD1/4PU273J
	R4268, R4269	RD1/4PU820J
	Other Resistors	RS1/16S###J

OTHERS

	4205 SPEAKER TERMINAL10-P	AKE7093
	RY4201-RY4203 SP RELAY	ASR7008
	CN4201 CONNECTOR	B5P-VH
	CN4204 CONNECTOR	B6B-EH
	KN4201 EARTH METAL FITTING	VNF1084
	CN4206 7P PLUG	XKP3063
	CN4202 17P PLUG	XKP3068

Mark	No.	Description	Part No.
	CN4203	23P PLUG	XKP3071

E PRIMARY ASSY

SEMICONDUCTORS

	Q51	2SD1858X
	D52	1SS133

COILS AND FILTERS

⚠	L1 LINE FILTER	XTF3004

CAPACITORS

⚠	C1, C2 (0.022/AC275V)	ACE7022
⚠	C3 (10000P/AC250V)	ACG7034

RESISTORS

	All Resistors	RS1/16S###J

OTHERS

	H1, H2 FUSE CLIP	AKR7001
⚠	RY51	ASR7029
⚠	CN1 CONNECTOR	B2P3S-VH
⚠	AN1 AC INLET 1P	XKP3041
	CN51 7P SOCKET	XKP3074

6. ADJUSTMENT

There is no information to be shown in this chapter.

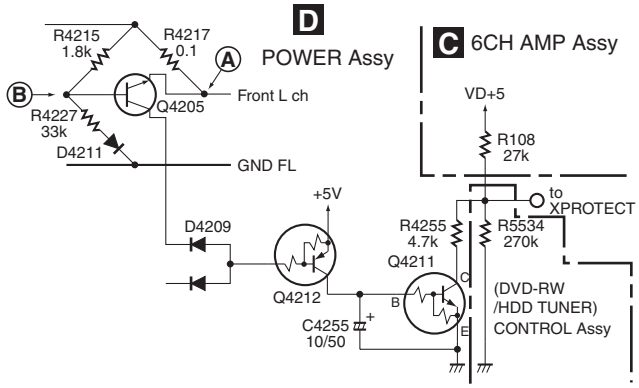
7. GENERAL INFORMATION

7.1 DIAGNOSIS

7.1.1 PROTECTION CIRCUIT

Note: Refer to the Schematic Diagram about the actual circuit. (The □ number corresponds to the ▭ marked circuits.)

1 Protection circuit when the Speaker terminal becomes overloaded



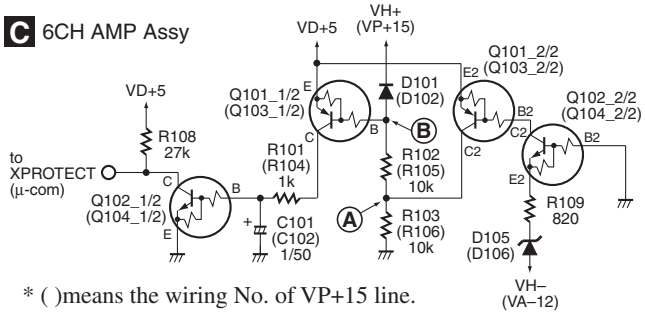
In Normal mode, the speaker (6 ohms) is connected between the FL and GND FL points. Because the voltage at Point Ⓐ is higher than that at Point Ⓑ, Q4205 does not operate.

If the resistance between the FL and GND FL points becomes 1.83 ohms or less, Q4205 begins to operate, Q4212 is turned on, Q4211 (E, C, and B)is turned on, and the level of XPROTECT becomes MID.

→ The microcomputer detects the XPROTECT level and shuts the power to the unit off.

2 Short-circuit-detection circuit for the amplifier power circuit (VH+[VP+15], VD+5, -12 V [VA-12])

Circuit for shutting the power off when VP+15, VD+5, or VA-12 is short-circuited to ground (GND)



* ( )means the wiring No. of VP+15 line.

- In Normal mode, as Q101 (Q103) (E2, B2, C2) and Q102 (Q104) (E2, B2, C2) are on, the voltage at Point Ⓐ is about 5 V. The voltage at Point Ⓑ is therefore about the same. As Q101 (Q103) (E, C, B) is off, Q102 (Q104) (E, C, B) is also off.

(1) When VH+(VP+15) is short-circuited to GND

As the voltage at Point Ⓑ becomes almost ground potential, and Q101 (Q103) (E, C, B) then Q102 (Q104) (E, C, B) are turned on, the level of XPROTECT becomes low.

→ The microcomputer detects the XPROTECT level and shuts the power to the unit off.

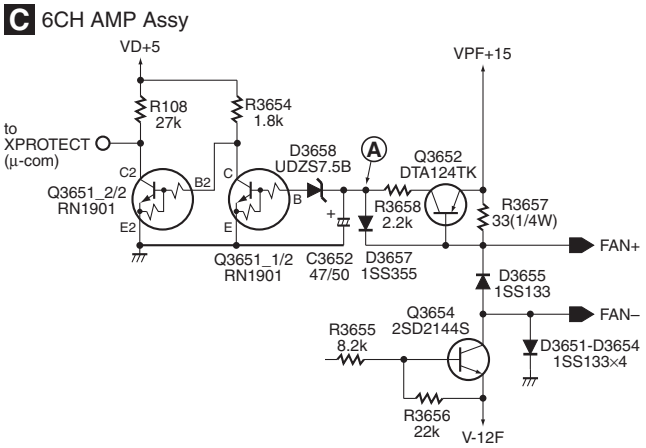
(2) When VH-(VA-12) is short-circuited

As the electric potential of VE at Q102 (Q104) (E2, C2, B2) becomes the same as that at VB, Q102 (Q104) (E2, C2, B2) is turned off. Following this, Q101 (Q103) (E2, B2, C2) is turned off, which changes the voltage at Points Ⓐ and Ⓑ to a value other than 5 V. Therefore, Q101 (Q103) (E, C, B) then Q102 (Q104) (E, C, B) are turned on, the level of XPROTECT becomes low.

(3) When VD+5 is short-circuited

The level of the XPROTECT line becomes low. The microcomputer detects the XPROTECT level and shuts the power to the unit off.

3 FAN detection circuit

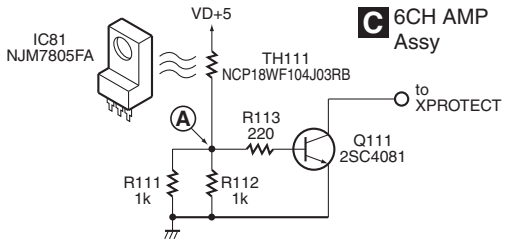


If no fan is connected between FAN+ and FAN-, or when the fan cannot rotate because of a foreign object caught in the blades, current will not flow to R3657, and Q3652 and Q3651-1/2 (E, C, B) are turned off. Then Q3651-2/2 (E2, B2, C2) is turned on, and the level of XPROTECT becomes low.

→ The microcomputer detects the XPROTECT level and shuts the power to the unit off.

When FAN+ and FAN- are short-circuited, the electric potential at Point Ⓐ becomes higher than GND level by the addition of the values at D3651 -D3654 and D3657. As this value is lower than that at D3658, Q3651 (E, C, B) is turned off, Q3651 (E2, B2, C2) is turned on, and the level of XPROTECT becomes low.

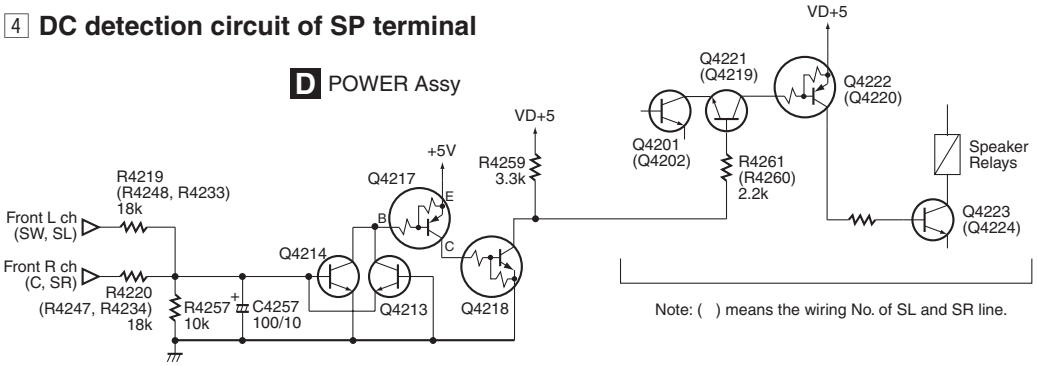
5 IC81 abnormal temperature detection circuit



The voltage at Point Ⓐ becomes the divided voltage of TH111 and R111//R112 (combined resistance of parallel-connected resistors R111 and R112.) In Normal mode, the resistance at TH111 is much higher than R111//R112, and Q111 is off. (Note that the resistance at TH111 becomes lower as the temperature increases.) If the solder temperature at IC81 increases abnormally, the temperature at TH111 (thermistor) mounted closest to the land of IC81 increases accordingly, and the resistance at TH111 decreases.

When the temperature at TH111 reaches 90-110_C (varying according to conditions,) the voltage at Point (A) becomes high enough to turn Q111 on, and the level of the XPROTECT line becomes low. The microcomputer detects the XPROTECT level and shuts the power to the unit off.

4 DC detection circuit of SP terminal



• In Normal mode, both Q4214 and Q4213 are off.

(1) When positive (+) DC voltage is generated at the SP terminal

When positive (+) DC voltage is generated at the L or R channel, and VB of Q4214 becomes higher than that at the operation point, Q4217 (E, C, B) is turned on, and the level of Q4221 (Q4219)'s Base becomes low.

→ Q4222 (Q4220) is turned off, and Speaker Relays are turned off.

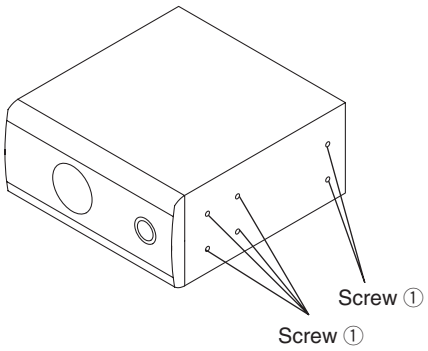
(2) When negative (-) DC voltage was generated at the SP terminal

Q4213 is turned on, and Speaker Relays are turned off.

7.1.2 DISASSEMBLY

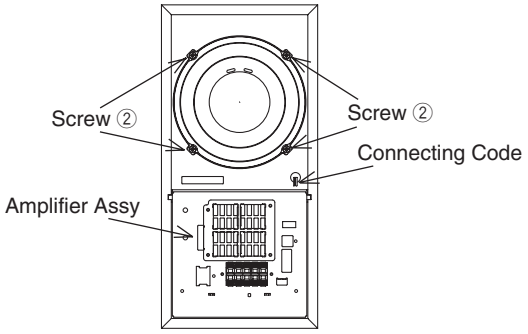
1. Removing the Amplifier Assy

1) The Amplifier Assy is attached to the cabinet by six external screws ①. To detach it, pull down the subwoofer toward the left side.
2) Then unfasten those screws ① .
3) Then stand up the speaker again. To detach the Amplifier Assy, first remove the connecting code. Then pull straight the Amplifier Assy toward back and remove it.



2. Removing the Subwoofer

1) The speaker element is attached to the back board by four external screws ②. To detach it, unfasten those screws.
2) When attaching it,face its terminal upward.



3. Removing the Cosmetic Baffle

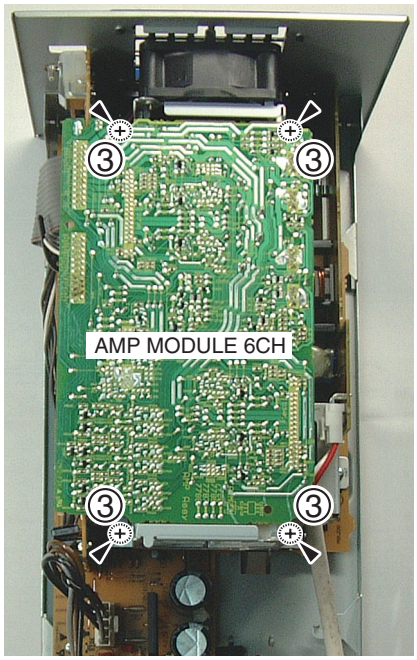
1) The cosmetic baffie is attached to the baffle by press-fitting. To detach it,pry it open by inserting a flat blade screwdriver into lower side.

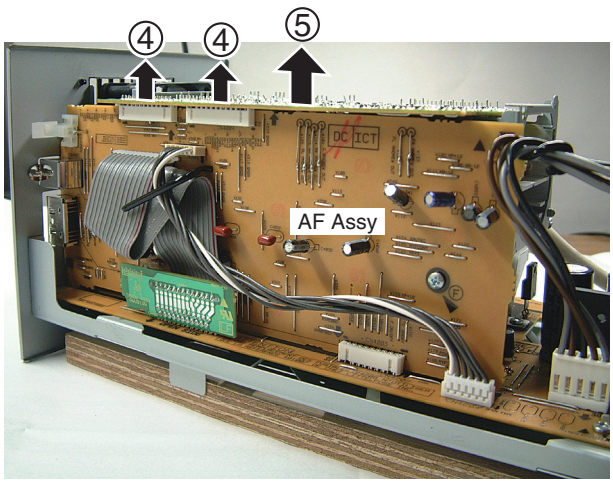
4. Removing the Cosmetic Duct

1) The cosmetic baffle, those screws are removed when removing the cosmetic duct attached in cosmetic baffle with four screws.

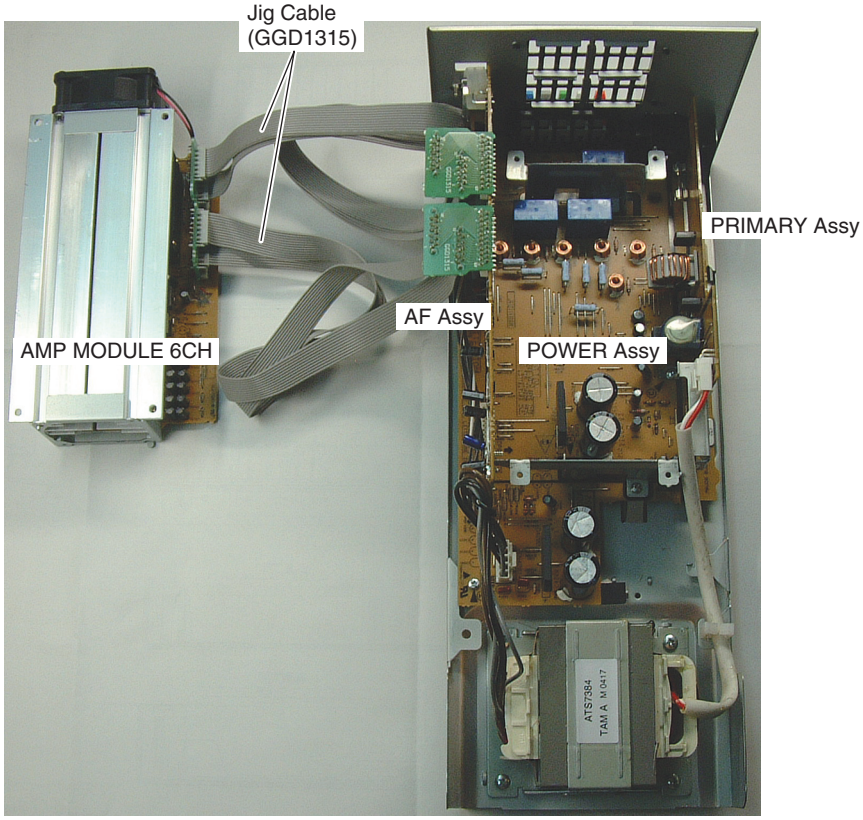
5. Diagnosis

1) Remove the four screws ③.
2) Disconnect the two connectors ④.
3) Remove the AMP MODULE ⑤.





4) Connect the two jig cables as figure below.



Diagnosis

7.2 IC

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

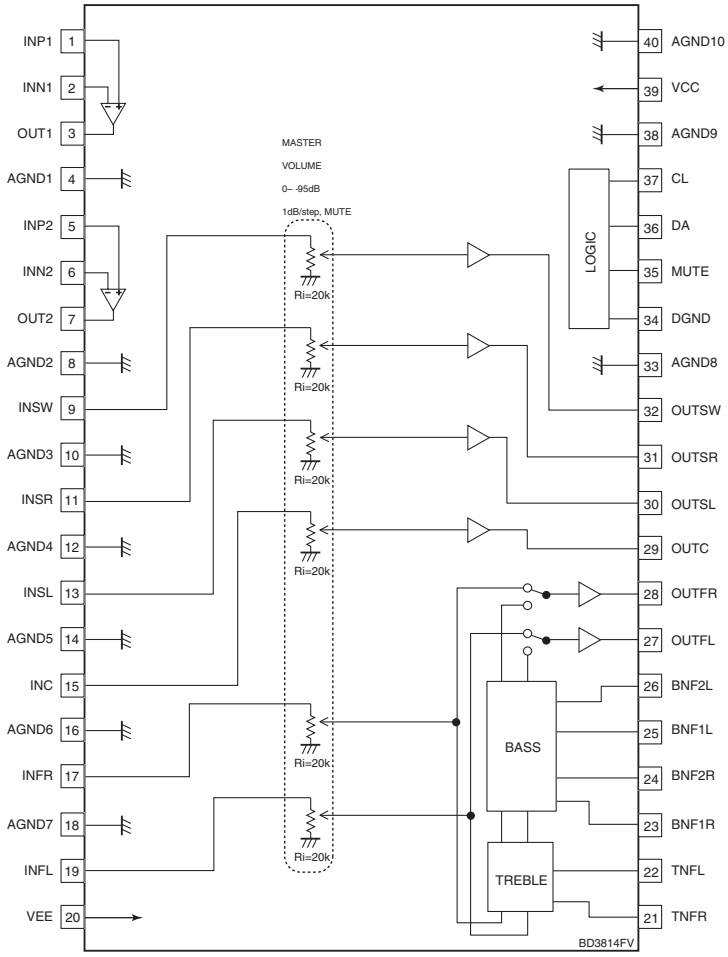
● **List of IC**

BD3814FV

■ BD3814FV (AF ASSY : IC4001)

• ELECTRIC VOL IC 6CH

● **Block Diagram**



● Description of terminal

Terminal Number	Terminal Name	Description	Terminal Number	Terminal Name	Description
1	INP1	INP1 input terminal	21	TNFR	Rch treble filter terminal
2	INN1	INN1 input terminal	22	TNFL	Lch treble filter terminal
3	OUT1	OUT1 output terminal	23	BNF1R	Rch bass filter terminal 1
4	AGND1	Analog ground terminal	24	BNF2R	Rch bass filter terminal 2
5	INP2	INP2 input terminal	25	BNF1L	Lch bass filter terminal 1
6	INN2	INN2 input terminal	26	BNF2L	Lch bass filter terminal 2
7	OUT2	OUT2 output terminal	27	OUTFL	Front Lch output terminal
8	AGND2	Analog ground terminal	28	OUTFR	Front Rch output terminal
9	INSW	Sub woofer input terminal	29	OUTC	Center ch output terminal
10	AGND3	Analog ground terminal	30	OUTSL	Sorround Lch output terminal
11	INSR	Sorround Rch input terminal	31	OUTSR	Sorround Rch output terminal
12	AGND4	Analog ground terminal	32	OUTSW	Sub woofer output terminal
13	INSL	Sorround Lch input terminal	33	AGND8	Analog ground terminal
14	AGND5	Analog ground terminal	34	DGND	Digital ground terminal
15	INC	Center ch input terminal	35	MUTE	Mute terminal
16	AGND6	Analog ground terminal	36	DA	Serial data and latch input terminal
17	INFR	Front Rch input terminal	37	CL	Serial clock input terminal
18	AGND7	Analog ground terminal	38	AGND9	Analog ground terminal
19	INFL	Front Lch input terminal	39	VCC	(+)Power supply terminal
20	VEE	(–)Power supply terminal	40	AGND10	Analog ground terminal

7.3 CLEANING

Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools:

Position to be cleaned	Cleaning tools
Fans	Cleaning paper : GED-008

■ Jigs list

Name	Jig No.	Remarks
Jig Cable	GGD1315	diagnosis / Prepare two cables.

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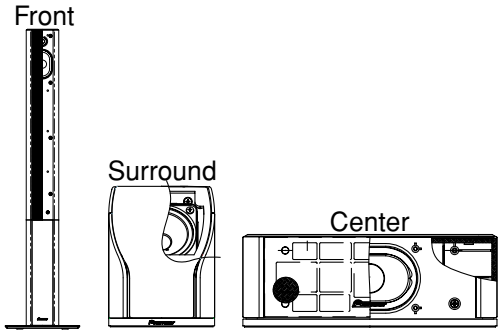
Service Manual



S-DVR9ST

ORDER NO.
RRV3066

SPEAKER SYSTEM

S-DVR9ST XJC/E

FOR PRECAUTION OF REASSEMBLY AND DISASSEMBLY

CS Assy (Front Speaker)

- The grille assy is attached to the cabinet by press-fitting. To detach it, remove the top board by inserting a flat blade screwdriver into the cabinet upper side. Then pry it open by inserting a flat blade screwdriver between the grille and the cabinet.

- The speaker unit is atached to the cabinet by 4 internal screws. To detach it, first two screws of a connection part with a SP stand are removed. Next the screw of a front cabinet is removed and the hexagon socket screw of a top Plate is removed. And the screw which is fixing the SP unit is removed and a cable is removed.
  When attaching it, face its terminal toward the input terminal.

CS Assy (Surround Speaker)

- The grille assy is attached to the cabinet by its bosses. To detach it, remove the stand by inserting a flat blade screwdriver into the cabinet lower side. Then pry it open by inserting a flat blade screwdriver into the grille slot.

- The speaker unit is attached to the front cabinet by 4 external screws.
  To detach it, first remove the stand and the grille assy like above. Next unfasten those screws. Then remove the cable. When attaching it, face its terminal downward.

CS Assy (Center Speaker)

- The grille assy is attached to the cabinet by its bosses. To detach it, remove the top board by inserting a flat blade screwdriver into the cabinet upper side. Then pry it open by inserting a flat blade screwdriver between the grille and the cabinet.

- The speaker unit is attached to the cabinet by 4 internal screws. To detach it, first unfasten screws of the bottom stand. Next remove screws for the cabinet and SP unit. Then remove the cable. When attaching it, face its terminal toward the input terminal.

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PARTS LIST

NOTES: ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

For Packing

Mark	No.	Description	Part No.
NSP	1...	CS ASSY(F)	SMW1831
NSP	1...	CS ASSY(S)	SMW1832
NSP	1...	CS ASSY(C)	SMW1833
NSP	1...	MODEL LABEL (FL)	SAN3491
NSP	1...	MODEL LABEL (FR)	SAN3492
NSP	1...	MODEL LABEL (SL)	SAN3493
NSP	1...	MODEL LABEL (SR)	SAN3494
NSP	1...	MODEL LABEL (C)	SAN3495
NSP	1...	COSMETIC STAND SET	SEA1640
	.2..	POLY BAG S1	SHL1372
	.2..	COSMETIC STAND	SNK2750
NSP	.2..	CLEAR TAPE 12MM	ZTA-400-12
NSP	1...	COSMETIC PLATE SET	SEA1641
	.2..	POLY BAG S1	SHL1372
	.2..	COSMETIC PLATE	SNK2751
NSP	.2..	CLEAR TAPE 12MM	ZTA-400-12
NSP	1...	ACCESSARY SET	SEA1662
	.2..	SPEAKER WIRE	SDS1153
	.2..	SPEAKER WIRE	SDS1154
	.2..	SPEAKER WIRE	SDS1155
	.2..	SPEAKER WIRE	SDS1156
	.2..	SPEAKER WIRE	SDS1157
NSP	.2..	TAPE SET	SEA1654
	..3.	TAPE	SEP1306
	..3.	POLY BAG S0	SHL1349
NSP	..3.	CLEAR TAPE 12MM	ZTA-400-12
NSP	.2..	NON SKID PAD	SEC1763
	.2..	NON SKID PADS	SEP1307
NSP	.2..	POLY BAG S2	SHL1251
NSP	.2..	CLEAR TAPE 12MM	ZTA-400-12
NSP	1...	SCREW SET	SEA1663
	.2..	SCREW	BMZ50P140FNC
	.2..	SCREW	BMZ50P200FNC
	.2..	POLY BAG S0	SHL1259
NSP	.2..	CLEAR TAPE 12MM	ZTA-400-12
	1...	TOP PROTECTOR	SHA2460
	1...	BOTTOM PROTECTOR	SHA2461
	1...	PACKING CASE	SHG2588
	1...	POLY BAG S2 (FOR CENTER SP)	SHL1345
	1...	POLY BAG S1 (FOR FRONT, REAR SP)	SHL1373
	1...	POLY BAG S1 (FOR SP STAND ASSY)	SHL1416
	1...	PACKING BAG S2 (FOR BASE ASSY)	SHL1410
	1...	SUPPLEMENT INST.	SRK1022
NSP	1...	TAPE	ZTA-3303-50CL
NSP	.2..	CLEAR TAPE 12MM	ZTA-400-12

CS ASSY (F)

Mark	No.	Description	Part No.
NSP	1...	CS ASSY(L)	SMW1835
	.2..	SCREW(FOR TW)	BPZ30P080FNI
	.2..	SCREW(FOR WF)	BPZ35P080FNI
	.2..	SCREW(FOR CABINET)	BPZ35P120FNI
	.2..	SPEAKER(TRIVALENT CHROMATE)	FK26AP13-54F
	.2..	SPEAKER(TRIVALENT CHROMATE)	K101DC55-52D
	.2..	HEXAGON SOCKET SCREW (FOR TOP PLATE)	SBA1237
	.2..	PACKING (GASKET)	SEB1282
	.2..	PACKING (For Top Plate)	SEC1805
	.2..	PACKING (For Rear Cabinet)	SEC1808
	.2..	PACKING (For Rear Cabinet)	SEC1812
	.2..	PACKING (For Rear Cabinet)	SEC1819
	.2..	PACKING (For Rear Cabinet)	SEC1829
	.2..	GRILLE	SMG1818
NSP	..3.	GRILLE CLOTH	SAS1572
	..3.	PACKING	SEC1883
NSP	..3.	GRILLE FRAME	SMH1090
NSP	..3.	DOUBLE FACED TAPE	ZTB-5000NS-10
NSP	.2..	ACOUSTIC ABSORBENT	SMV2199
NSP	.2..	ACOUSTIC ABSORBENT	SMV2208
	.2..	TOP PLATE(L)	SNK2748
NSP	.2..	COSMETIC TRIM	SNK2807
NSP	.2..	FRONT CABINET	SNK2814
NSP	.2..	REAR CABINET	SNK2815
NSP	.2..	CAUTION LABEL(L)	SRN1010
	.2..	NETWORK ASS'Y	SWN1728
NSP	.2..	DOUBLE FACED TAPE	ZTB-5000NS-10
NSP	1...	CS ASSY(R)	SMW1836
	.2..	SCREW (FOR TW)	BPZ30P080FNI
	.2..	SCREW (FOR WF)	BPZ35P080FNI
	.2..	SCREW (FOR CABINET)	BPZ35P120FNI
	.2..	SPEAKER(TRIVALENT CHROMATE)	FK26AP13-54F
	.2..	SPEAKER(TRIVALENT CHROMATE)	K101DC55-52D
	.2..	HEXAGON SOCKET SCREW (FOR TOP PLATE)	SBA1237
	.2..	PACKING (GASKET)	SEB1282
	.2..	PACKING (For Top Plate)	SEC1805
	.2..	PACKING (For Rear Cabinet)	SEC1808
	.2..	PACKING (For Rear Cabinet)	SEC1812
	.2..	PACKING (For Rear Cabinet)	SEC1819
	.2..	PACKING (For Rear Cabinet)	SEC1829
	.2..	GRILLE	SMG1818
NSP	..3.	GRILLE CLOTH	SAS1572
	..3.	PACKING	SEC1883
NSP	..3.	GRILLE FRAME	SMH1090
NSP	..3.	DOUBLE FACED TAPE	ZTB-5000NS-10
NSP	.2..	ACOUSTIC ABSORBENT	SMV2199
NSP	.2..	ACOUSTIC ABSORBENT	SMV2208
	.2..	TOP PLATE(R)	SNK2749
NSP	.2..	COSMETIC TRIM	SNK2807
NSP	.2..	FRONT CABINET	SNK2814
NSP	.2..	REAR CABINET	SNK2815
NSP	.2..	CAUTION LABEL(R)	SRN1011

Mark	No.	Description	Part No.
	.2..	NETWORK ASS'Y	SWN1728
NSP	.2..	DOUBLE FACED TAPE	ZTB-5000NS-10
NSP	1...	SP STAND ASSY	SXG1075
	.2..	SCREW	BPZ35P120FNI
NSP	.2..	BADGE 30	SAM6006
	.2..	CONNECTION CORD	SDF1105
	.2..	PACKING	SEC1828
	.2..	IN-PUT TERMINAL	SKX1062
NSP	.2..	ACOUSTIC ABSORBENT	SMV2200
NSP	.2..	COSMETIC PLATE	SNK2765
NSP	.2..	FRONT STAND	SNK2816
NSP	.2..	REAR STAND	SNK2817
NSP	.2..	DB-1600H	ZBA-1600H
NSP	1...	BASE ASSY	SXG1076
	.2..	SCREW	BMZ30P060FNI
	.2..	NON SKID PAD	SEB1283
NSP	.2..	BASE	SNH1081
NSP	.2..	BASE	SNN1019

CS ASSY (S)

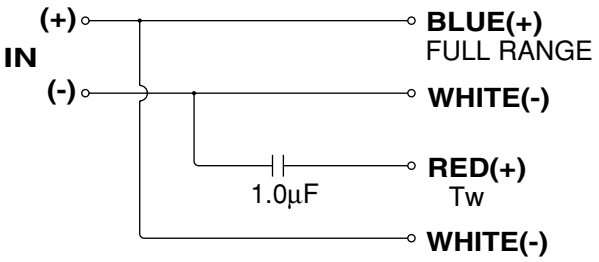
Mark	No.	Description	Part No.
	1...	BOTTOM PLATE	SNK2744
NSP	1...	COSMETIC TRIM	SNK2808
	1...	FRONT CABINET	SNK2818
	1...	REAR CABINET(L)	SNK2819
NSP	1...	REAR CABINET(R)	SNK2820
	1...	GRILLE	SMG1819
NSP	.2..	GRILLE CLOTH	SAS1573
NSP	.2..	GRILLE FRAME	SMH1091
	1...	SPEAKER WIRE	SDD1275
	1...	PACKING (4x83mm)	SEC1806
	1...	PACKING (4x134mm)	SEC1813
	1...	PACKING (4x88mm)	SEC1814
	1...	PACKING (4x35mm)	SEC1815
	1...	PACKING (4x20mm)	SEC1816
NSP	1...	PACKING (4x44mm)	SEC1837
	1...	IN-PUT TERMINAL	SKX1062
NSP	1...	PLASTIC CAP	SNK2790
	1...	SPEAKER	B70DU55-52D
NSP	.2..	DB-1600H	ZBA-1600H
NSP	.2..	DOUBLE FACED TAPE	ZTB-5000NS-10
	1...	SCREW	BPZ35P080FNI
	1...	HEXAGON SOCKET SCREW (FOR BOTTOM PLATE)	SBA1237

CS ASSY (C)

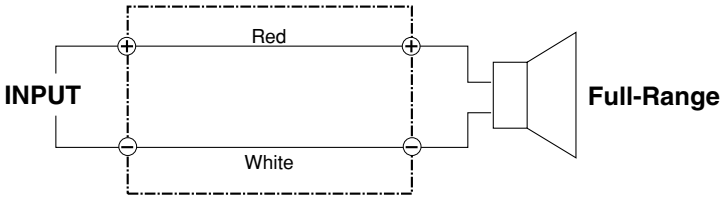
Mark	No.	Description	Part No.
	1...	COSMETIC TOP BOARD	SNK2754
	1...	BOTTOM PLATE	SNK2755
	1...	FRONT CABINET	SNK2821
	1...	REAR CABINET	SNK2822
	1...	GRILLE	SMG1820
NSP	.2..	BADGE 30	SAM6006
NSP	.2..	GRILLE CLOTH	SAS1574
NSP	.2..	GRILLE FRAME	SMH1079
NSP	.2..	DB-1600H	ZBA-1600H
NSP	.2..	DOUBLE FACED TAPE	ZTB-5000NS-10
	1...	SPEAKER WIRE	SDD1275
	1...	PACKING (4 X 75 mm)	SEC1807
	1...	PACKING (4 X 237 mm)	SEC1817
	1...	PACKING (60 X 45 mm)	SEC1835
	1...	PACKING	SEE1091
	1...	IN-PUT TERMINAL	SKX1062
NSP	1...	ACOUSTIC ABSORBENT	SMV2195
NSP	1...	ACOUSTIC ABSORBENT	SMV2199
	1...	SPEAKER	K101DC55-52D
NSP	.2..	DB-1600H	ZBA-1600H
	1...	SCREW	BPZ35P080FNI

SCHEMATIC DIAGRAM

Network Assy (SWN1728)



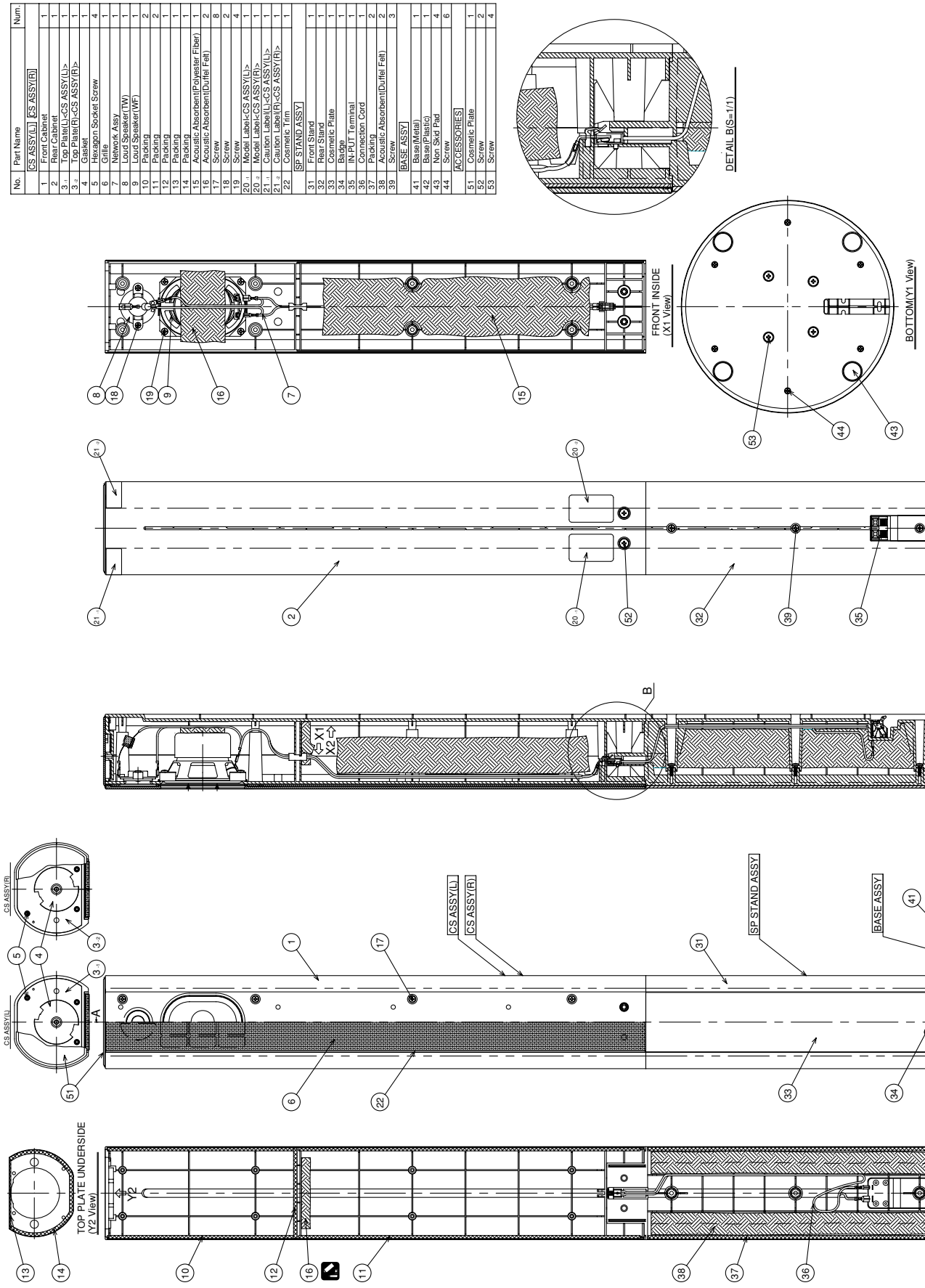
SDD1275



PRODUCT APPEARANCE

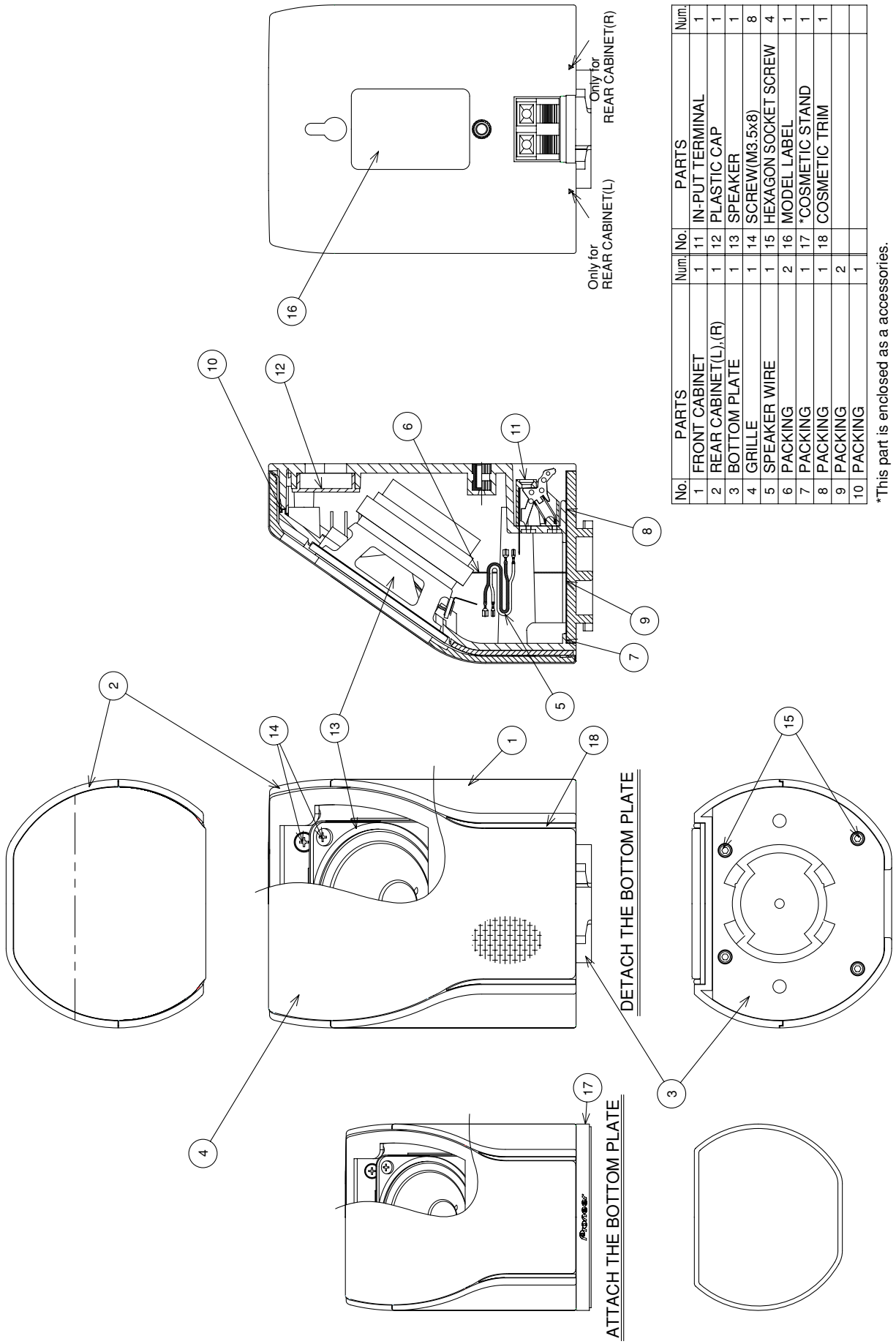
CS ASSY(F)

No.	Part Name	Num.
	CS ASSY(L) CS ASSY(R)	
1	Front Cabinet	1
2	Rear Cabinet	1
3 -1	Top Plate(L)-<CS ASSY(L)>	1
3 -2	Top Plate(R)-<CS ASSY(R)>	1
4	Gasket	1
5	Hexagon Socket Screw	4
6	Grille	1
7	Network Assy	1
8	Loud Speaker(TW)	1
9	Loud Speaker(WF)	1
10	Packing	2
11	Packing	2
12	Packing	1
13	Packing	1
14	Packing	1
15	Acoustic Absorbent(Polyester Fiber)	1
16	Acoustic Absorbent(Duffel Felt)	2
17	Screw	8
18	Screw	2
19	Screw	4
20 -1	Model Label-<CS ASSY(L)>	1
20 -2	Model Label-<CS ASSY(R)>	1
21 -1	Caution Label(L)-<CS ASSY(L)>	1
21 -2	Caution Label(R)-<CS ASSY(R)>	1
22	Cosmetic Trim	1
	SP STAND ASSY	
31	Front Stand	1
32	Rear Stand	1
33	Cosmetic Plate	1
34	Badge	1
35	IN-PUT Terminal	1
36	Connection Cord	1
37	Packing	2
38	Acoustic Absorbent(Duffel Felt)	2
39	Screw	3
	BASE ASSY	
41	Base(Metal)	1
42	Base(Plastic)	1
43	Non Skid Pad	4
44	Screw	6
	ACCESSORIES	
51	Cosmetic Plate	1
52	Screw	2
53	Screw	4



PRODUCT APPEARANCE

CS ASSY(S)

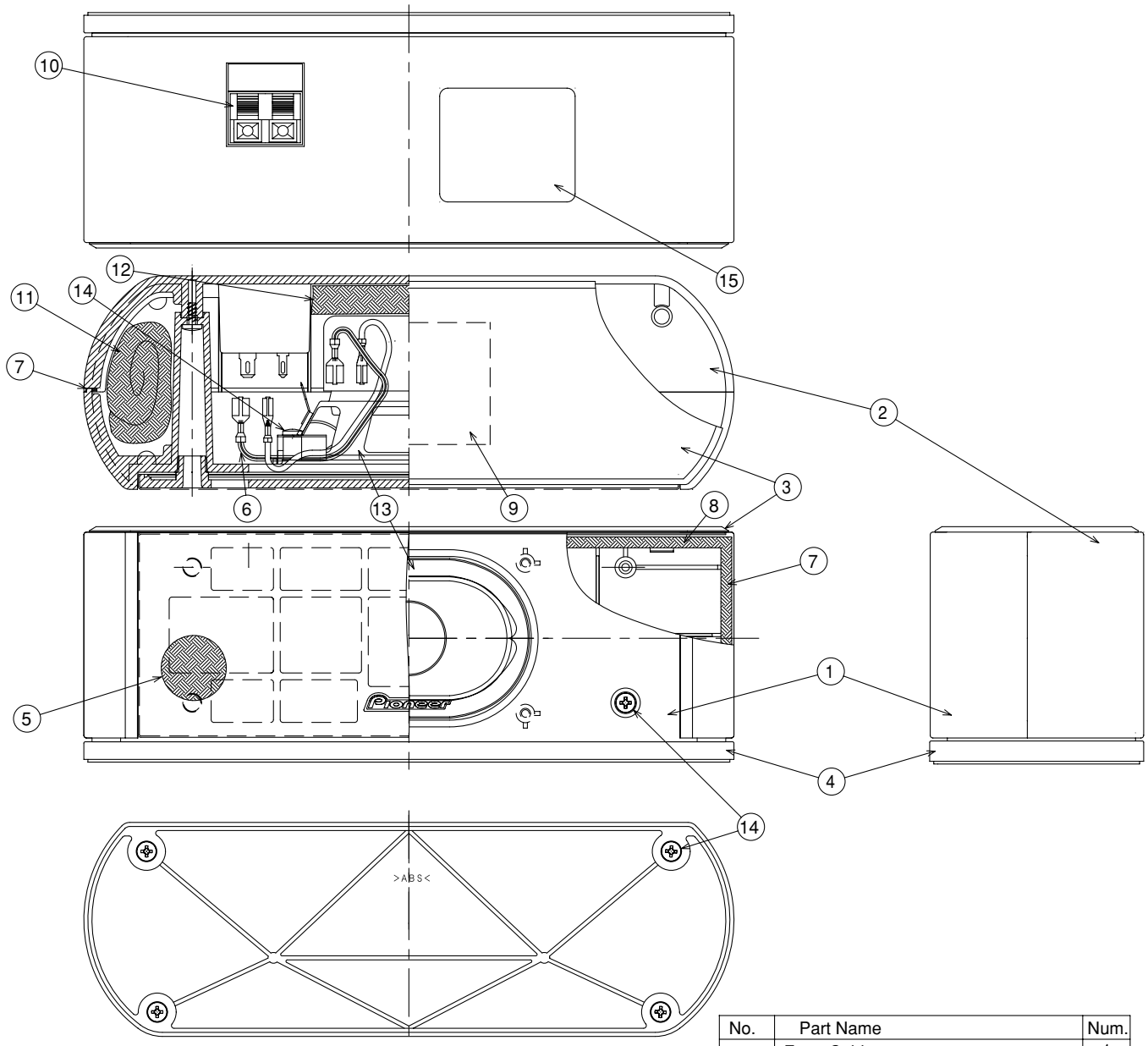


No.	PARTS	Num.
1	FRONT CABINET	1
2	REAR CABINET(L),(R)	1
3	BOTTOM PLATE	1
4	GRILLE	1
5	SPEAKER WIRE	1
6	PACKING	2
7	PACKING	1
8	PACKING	1
9	PACKING	2
10	PACKING	1
11	IN-PUT TERMINAL	1
12	PLASTIC CAP	1
13	SPEAKER	1
14	SCREW(M3.5x8)	8
15	HEXAGON SOCKET SCREW	4
16	MODEL LABEL	1
17	*COSMETIC STAND	1
18	COSMETIC TRIM	1

*This part is enclosed as a accessories.

PRODUCT APPEARANCE

CS ASSY(C)



No.	Part Name	Num.
1	Front Cabinet	1
2	Rear Cabinet	1
3	Cosmetic Top Board	1
4	Bottom Plate	1
5	Grille Assy	1
6	Speaker Wire	1
7	Packing	2
8	Packing	2
9	Packing	1
10	Input Terminal	1
11	Acoustic Absorbent(Polyester Fiber)	2
12	Acoustic Absorbent(Duffel Felt)	1
13	Loud Speaker	1
14	Screw	12
15	Model Label	1

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Service Manual

ORDER NO.
RRV3062

DVD-RW/HDD 5.1CH SURROUND SYSTEM

HTZ-929DVR

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Region No.	Remarks
HTZ-929DVR	WLXJ	AC220-240V	3	
HTZ-929DVR	YPWXJ	AC240V	4	

● This product is component of system.

Component	System	Service Manual	Remarks
DVD-RW/HDD 5.1CH SURROUND SYSTEM	HTZ-929DVR/WLXJ	RRV3062	This manual.
DVD-RW/HDD TUNER	XV-DVR9H/WLXJ	RRV3063	
POWERED SUBWOOFER	S-DVR9SW/WLXJI	RRV3054	
SPEAKER SYSTEM	S-DVR9ST/XJC/E	RRV3066	

Component	System	Service Manual	Remarks
DVD-RW/HDD 5.1CH SURROUND SYSTEM	HTZ-929DVR/YPWXJ	RRV3062	This manual.
DVD-RW/HDD TUNER	XV-DVR9H/YPWXJ	RRV3063	
POWERED SUBWOOFER	S-DVR9SW/YPWXJI	RRV3054	
SPEAKER SYSTEM	S-DVR9ST/XJC/E	RRV3066	

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